RR

JULY 23, 1955

Vol. 149 — No. 4

UNIVERSITY OF MICHIGAN

JUL 28 1955

ENGINEERING LIBRARY

MANAGEMENT • PLANT • TRAFFIC • COMMERCIAL • LEGAL • ACCOUNTING •

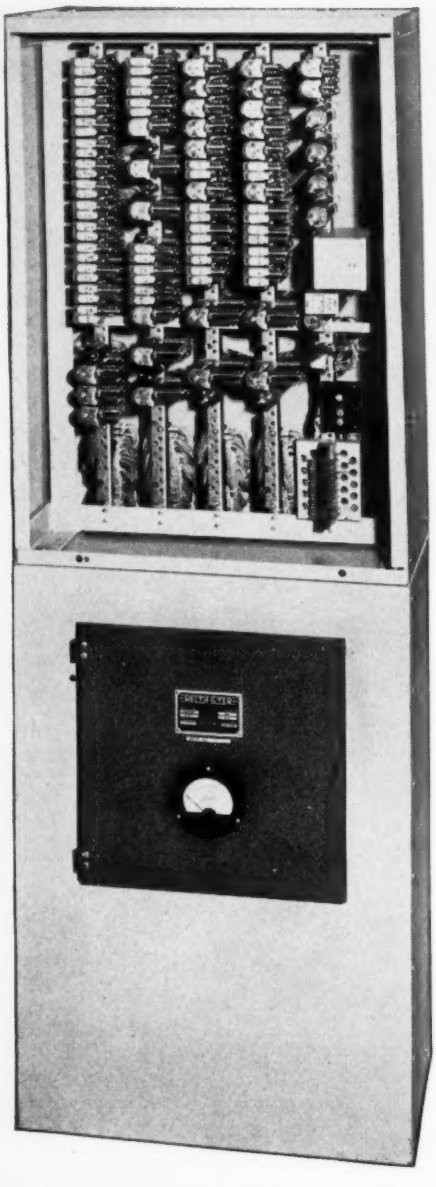
Telephony

THE JOURNAL OF THE TELEPHONE INDUSTRY

Published every week on Saturday by TELEPHONY PUBLISHING CORPORATION, 608 South Dearborn Street, Chicago 5, Illinois. Subscription $3.50 per year. Entered as second class matter at the Post Office at Chicago, Illinois, under the act of March 3, 1879.

Guaranteed Circulation This Issue

10,575 of Which 10,026 is Paid



2-10 System cabinet complete with power unit

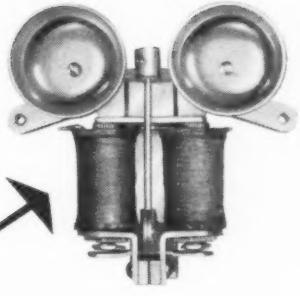
No. 1543 standard desk set

More revenue at your fingertip

...with these dial PB

No. 1573 two-line telephone

Better Apparatus



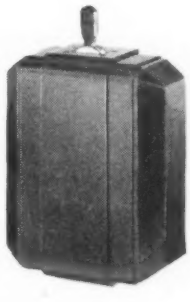
FREQUENCY SELECTIVE RINGERS

High impedance—for each of the frequency Selective Series, Harmonic, Synchromonic and Decimonic. Reduces excessive current drain on short loops. Improves ringing on long heavily loaded loops.

KELLOGG MASTERPHONES

Long lasting, efficient, reliable, Kellogg *Masterphones* have long been established as the finest telephone instruments produced. Your subscribers will appreciate their sturdy, clean-cut appearance—their perfection of performance. And you will benefit from their basic economy, low cost maintenance and operational superiority.

Kellogg supplies Masterphones in common battery, dial, or magneto type for wall or desk installations.



KEY BOX

Compact, attractive. Used to switch a telephone between two incoming trunk lines and to hold one line while using the other for intercommunications. No auxiliary equipment required. Sturdy black Bakelite cover.

KELLOGG DIAL

For all types of instruments. Noted for high efficiency, good looks and simplicity. Furnished with various types of number plates. Quiet in operation. Precision built to highest standards. Long lasting and economical!

PLUGS

Kellogg manufactures all types of plugs—operator's, switchboard and wall outlet. Made to give maximum service. Tips are of brass, and hard rubber insulation is used. All connections protected by fibre sleeve.

KELLOGG DIVISION OF I T&T

ELLOGG SWITCHBOARD AND SUPPLY COMPANY

A Division of International Telephone and Telegraph Corporation

SALES OFFICE: 79 West Monroe Street, Chicago 3, Illinois

KELLOGG SWITCHBOARD AND SUPPLY COMPANY
79 W. Monroe Street, Chicago 3, Illinois

Please send me information on your line of communication products for telephone and electronic applications.

NAME_____

COMPANY_____

STREET_____

CITY_____ ZONE____ STATE_____

FLASHES AND PLUGS

ECONOMY. TELEPHONY's Mexico correspondent reports that the Mexico City government has ceased the favor of allowing inmates of the federal district penitentiary—Mexico's largest jailhouse, with a population of some 4,000 convicts and unbailables awaiting trial or sentence—the good conduct favor of telephoning for free to the outside.

Economic reasons only, it was explained at the city hall, prompted ending the courtesy. It was found that allowing this favor cost the government 25,000 pesos ($2,000) a month.

Most of these telephone users were the majority of the 1,000 women in the prison, it was revealed.

However, prisoners, if well-behaved, continue to enjoy the right to telephone outside—but now at their own expense. There are much fewer calls.

• • •

REMOTE CONTROL. A Los Angeles publicist is confounding delivery boys who call at his home when neither he nor his wife is present.

Outside the backdoor hangs a telephone and printed instructions to call his office number. When this is done, his secretary calls back a certain number on another telephone that trips the back door lock and lets the delivery boy into the house.

The other day, his wife lost her key, but all she had to do was call the number and she was in.

Naturally, the key number is known only to the man, his wife and his secretary.

• • •

FIERY ROMANCE. By now you may have read about the 18-year-old English nurse who wanted to date a handsome fireman she met at a dance.

She picked up the telephone and told the operator: "Give me the fire brigade."

"Where are you speaking from?" the operator asked.

"Linton Hospital," the pretty nurse said.

Within a minute, four fire trucks, two radio patrol cars, 50 firemen and half a dozen top officials were rushing to the hospital.

All they found was Norah—still holding the line and hoping to speak to her boy friend.

• • •

TOO MUCH IS TOO—. Members of a Missouri Rotary club are resignedly waiting to hear the joke about the motorist and the insane asylum again.

They heard it for five straight weeks recently, the St. Louis *Post-Dispatch* reports. Each Tuesday noon, the weekly guest speaker launched his talk with it. Finally, the Rotarians rose in revolt and accused the program chairman of conspiring with the speakers.

He protested his innocence, and in desperation, the following week, aimed to forestall a repetition of the joke by starting to tell it himself in introducing Speaker No. 6. Roars of Rotarian rage cut him off.

CIRCULATION

Guaranteed circulation of this issue is 10,575 of which 10,026 is paid.

Telephony

THE JOURNAL OF THE TELEPHONE INDUSTRY

July 23, 1955

Contents

HAWAIIAN TEL INSTALLS NEW RADIO NETWORK 17
By William B. Farinon

IN THE NATION'S CAPITAL 20
By Francis X. Welch

THE OPERATOR'S CORNER 22
By Mayme Workman

THE PLANT MAN'S NOTEBOOK 23
By Ray Blain

PLANT MAN'S QUIZ 24
By Ray Blain

CALIFORNIA INDEPENDENTS GAIN 500,000 STATIONS IN EIGHT YEARS 28

SOLAR BATTERY NOW TWICE AS EFFICIENT, SCIENTISTS FIND 31

COURTS AND COMMISSIONS 32

MICHIGAN BELL SAVES TIME AND MONEY WITH PHOTOGRAPHIC COPYING MACHINES 34

H. D. FARGO Jr., *President & Advertising Manager*
R. C. RENO, *Vice President & Editor*
H. D. FARGO, *Vice President & Treasurer*
A. J. STULTS, *Secretary & Western Manager*
DAN FARGO, *Managing Editor*
FRANCES E. CRETCHER, *Associate Editor*
RAY BLAIN, *Technical Editor*
FRANCIS X. WELCH, *Washington Editor*
MAYME WORKMAN, *Traffic Editor*
VIVIAN RYDEN, *Circulation Manager*

WESTERN REPRESENTATIVES:
McDonald-Thompson, San Francisco, Cal.
Also offices in Los Angeles; Seattle, Wash.; Houston, Tex., and Denver, Colo.

Published by
TELEPHONY PUBLISHING CORP.

Vol. 149, No. 4. Published every week on Saturday by TELEPHONY PUBLISHING CORPORATION, 608 South Dearborn St., Chicago (5), Ill. 20 cents per copy (except special issues). Subscription $3.50 per year U. S.; $4.50 Countries in U. S. Spanish Postal Zone; $4.50 Canada; $5.50 Other Countries.

608 S. Dearborn St., Chicago (5), Ill., U. S. A.
Telephone WA bash 2-2435

Hawaiian Tel Installs New Radio Network

Fig. 1. Antennas on the roof of the Wailuku exchange building, Island of Maui.

By WILLIAM B. FARINON*

DURING the past few years a completely new network of radio circuits has been installed between the various islands of the Territory of Hawaii. Equipment of the original inter-island radio network, which had grown gradually since the first radiotelephone circuits were established in 1931, was replaced by modern multichannel radio systems providing island subscribers with toll facilities comparable to those available in any mainland area.

The new inter-island network, as shown in *Fig. 2*, consists of six radio circuits (four of which include repeaters), furnishing a total of 54 telephone channels. Some of these channels are subdivided to provide telegraph circuits, and a dialing circuit is associated with each voice channel.

Most inter-island calls are completed through operator toll dialing from the principal toll center on each island.

Hawaiian Telephone Co.

In terms of area served, and the problems of providing communications services to its subscribers, the Hawaiian Telephone Co. is unique in the Independent telephone industry.

However, in terms of subscriber demands, residents of the Territory of Hawaii are much the same as residents of any mainland area. They expect (and are able) to pick up a telephone and obtain a connection with a friend or business associate in the next county just as readily as any telephone user on the mainland can do this.

W. B. FARINON

The fact that the next county is a different island separated by almost 100 miles of open water is only incidental.

The Hawaiian Telephone Co. is the only common carrier providing telephone service on and between the six main islands of the Territory of Hawaii. In addition, the company provides telephone service to the mainland in conjunction with RCA Communications and American Telephone & Telegraph Co.

The Honolulu-Oakland trans-pacific circuit group, with 12 voice channels now in service, probably carries more traffic than any other transoceanic route. On some peak days, as many as 1,000 calls are completed.

The company also operates a mobile radio-telephone service in the Honolulu area, provides leased voice and telegraph channels for various commercial

*Mr. Farinon is with Hawaiian Telephone Co.

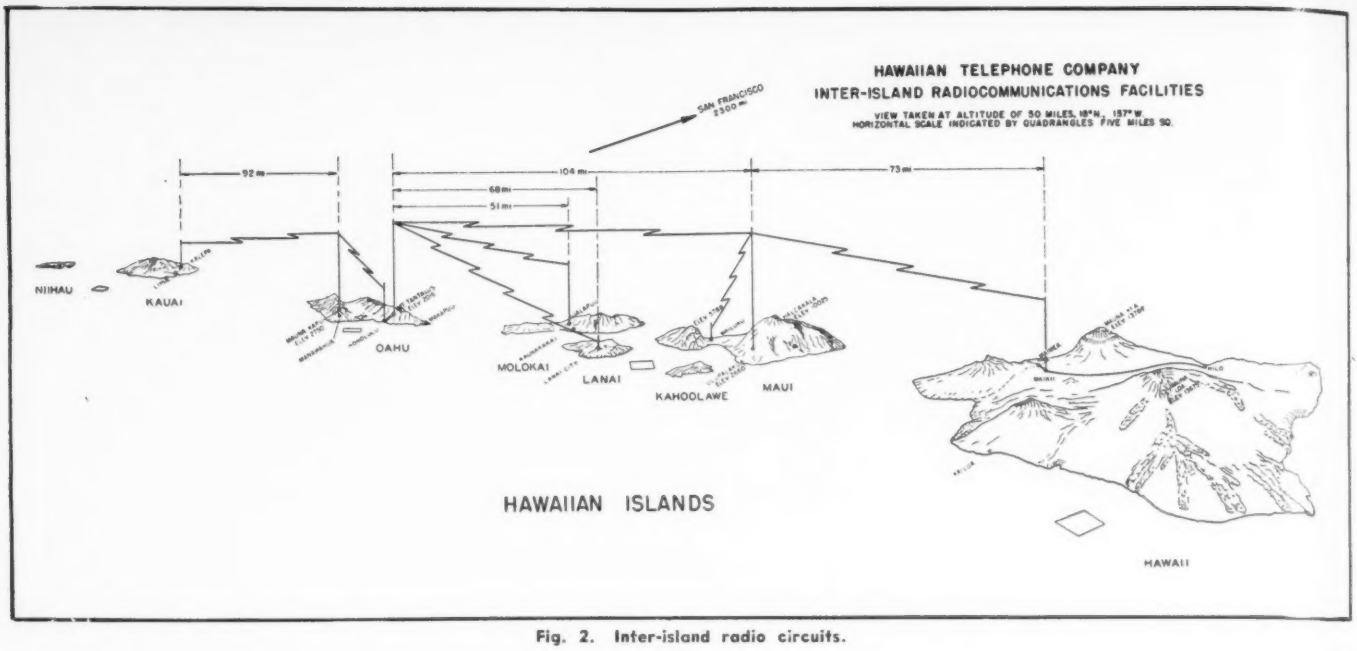


Fig. 2. Inter-island radio circuits.

and government activities, and furnishes program service for the islands' radio stations. A total of 132,822 telephones are served through 29 exchanges.

Toll service is particularly important because of the interdependence of the geographically separated islands. All the islands have extensive agricultural developments, several have large military installations, and, of course, increasing tourist travel is adding to telephone service demands.

Since headquarters for most commercial and military establishments are on Oahu, rapid and reliable communication with the other islands is an essential necessity for everyday activities.

Great Increase in Traffic

As shown in *Fig. 3*, the volume of inter-island telephone traffic increased gradually from the time the first circuits were established until the end of World War II. However, by 1950, the volume of inter-island traffic had increased to approximately four times the average during the war years—and up to 11 times that of the prewar period.

Part of this increased volume was from military and other government agencies which had previously provided their own facilities, but most of it was due to the tremendous increase in economic activity of the islands.

In 1946, the inter-island network had provided 13 voice channels. By 1950, this had been expanded to 34 voice channels. Part of the expansion had been obtained by adding one or two carrier derived channels to the previously installed single channel radio systems. In addition, new radio circuits, operating in a different frequency band, had been installed between Oahu and the islands of Maui and Hawaii.

Extensive studies made between 1946 and 1950 showed that the demand for inter-island communications would very likely continue to grow rapidly, and that the inter-island radio network, then existing, was not only inadequate but also could not be expanded to meet the anticipated traffic requirements. Much of the existing radio equipment was obsolete, both mechanically and electronically.

Most of the inter-island circuits operated in the 30 to 50 megacycle frequency range which was allocated on a primary basis to other radio services. In some cases, the inter-island circuits had caused interference to radio services on the mainland. And, at times, service to some islands had to be interrupted in favor of local public safety services operating on the same frequencies.

The newer inter-island circuits utilized frequencies between 152 and 162 megacycles. This band, too, was subject to interference with or from other services. In addition, it was not wide enough to provide all of the inter-island circuits needed.

Propagation Tests Made

A series of propagation tests made in 1950 confirmed previous predictions that the microwave frequency bands al-

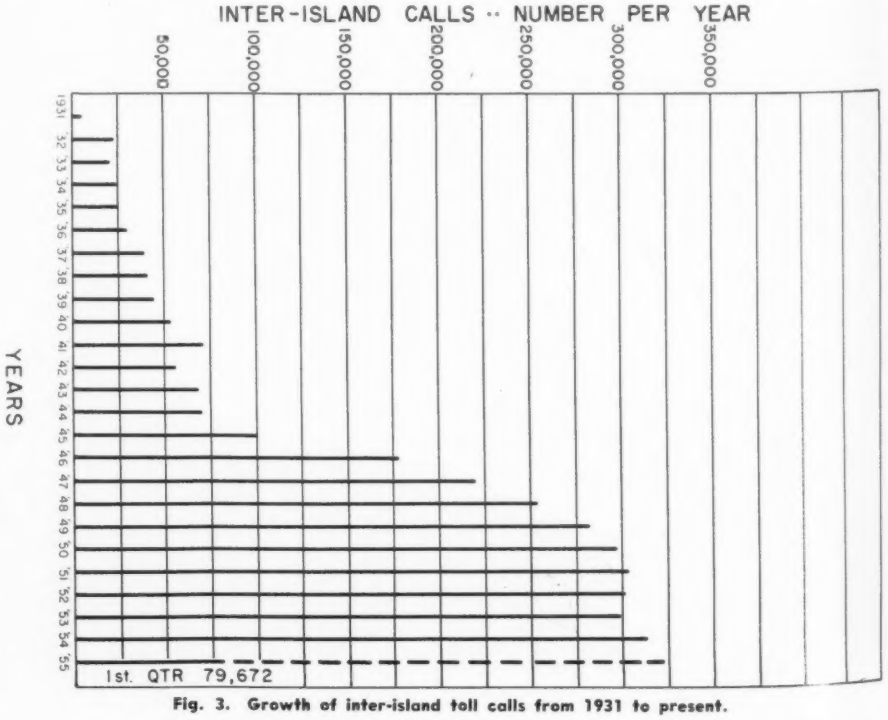


Fig. 3. Growth of inter-island toll calls from 1931 to present.

located for common carrier service, although practical for overland routes, were not suitable for inter-island circuits.

The long over-water paths (from 40 to 100 miles) were subject to excessive fading at frequencies above the VHF band.

After numerous possible methods for providing adequate inter-island service were examined, a detailed plan was prepared which provided for individual radio circuits radiating outward from Oahu to all of the other islands.

Studies of available equipment showed that the circuit requirements for the proposed network could best be met through the use of wideband FM radio systems multiplexed with standard frequency-division, single sideband carrier equipment. Installation of these equipment types would require the least number of radio links, and the least amount of frequency spectrum.

In addition, the multiplexed channels could be extended over open wire or cable between exchanges and radio sites on the various islands.

Upon examination of the characteristics of the radio equipment being considered, it was determined that, for proper operation of the entire radio network, one 10-megacycle and one 12-megacycle frequency band, separated by at least 10 megacycles, would be required.

Fortunately, in the Territory of Hawaii, suitable frequency bands were available within the frequencies normally assigned for TV and FM broadcasting. Consequently, a petition was filed with the Federal Communications Commission requesting that the frequencies between 76 and 88 megacycles (TV channels 5 and 6) and between 98 and 108 megacycles (FM channels 51 to 300) be allocated for inter-island common carrier service.

Since these two TV channels were not required to provide adequate service to the islands, and no use had been made of the FM band, the necessary frequency allocation was obtained.

Procurement of radio, carrier, and control and supervision equipment for the new inter-island circuits was begun late in 1951 with installation of the new circuits proceeding as rapidly as possible. With completion of a new radio circuit between Oahu and Lanai early this year, the initially planned expansion program was completed.

As traffic increases in the future, additional telephone channels can be obtained by simply installing additional multiplexing equipment to the already existing radio circuits.

Inter-Island Network

As previously mentioned, the present inter-island network includes six radio circuits, all of which terminate in the toll center on the island of Oahu. Two circuits provide service to Kauai.

Each of these circuits includes one overwater radio link operating in the 80-megacycle range and one overland link which operates in the 900-megacycle frequency band. This latter band is also commonly used for overland routes on the mainland. Six voice channels are provided over each of the Oahu-Kauai circuits.

The longest radio circuit in the network operates between the islands of Oahu and Hawaii with an intermediate repeater on Maui. Both radio links operate on overwater paths, one of 110 miles and one of 73 miles. The circuit provides 12 channels between Honolulu and the city of Hilo, and six channels between Honolulu and the town of Waimea.

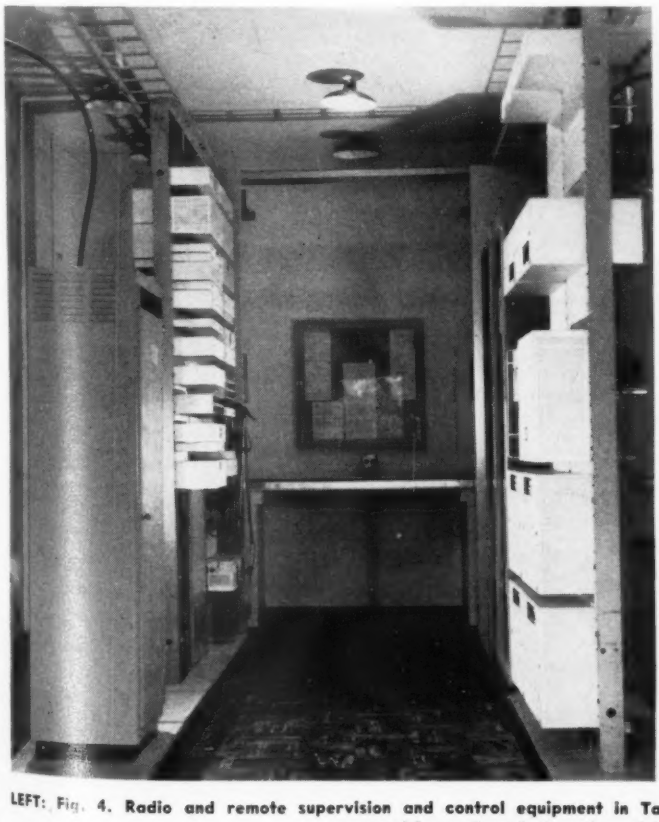
Service between the islands of Oahu and Maui is provided by a circuit which includes a 110-mile overwater link plus a short overland 900-megacycle link between the Maui radio site and the telephone exchange at the town of Wailuku. This circuit provides 12 channels.

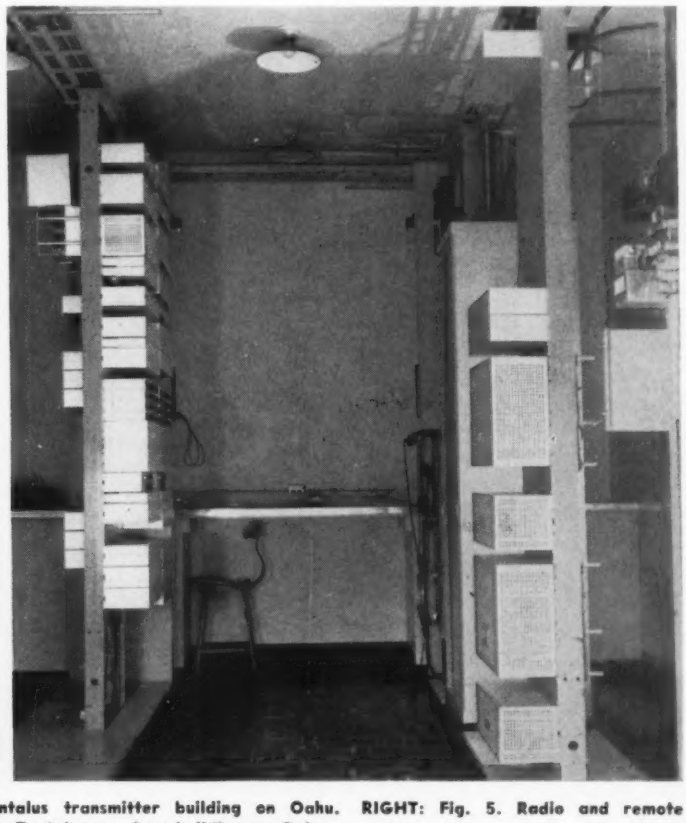
Both Lanai and Molokai are connected to Oahu by single link radio circuits furnishing six channels each. Radio stations on Lanai and Molokai are maintained by personnel from Maui. Technicians travel between islands by commercial airline.

Radio Sites

To obtain line-of-sight paths for the

(Please turn to page 39)





LEFT: Fig. 4. Radio and remote supervision and control equipment in Tantalus transmitter building on Oahu. RIGHT: Fig. 5. Radio and remote supervision and control equipment in Tantalus receiver building on Oahu.

by FRANCIS X. WELCH WASHINGTON EDITOR

Considers the telephone company as a tax collector . . . customers not fully aware of what is happening. Simplicity of such tax collection by government makes it a danger spot to be watched. Dixon-Yates scuttling leaves question of government-subsidized utilities unanswered.

FOR YEARS the public utilities of this nation have been cast in the role of publicans by various government agencies for the simple reason that the monthly bill for public utility service is an ideal tax collector. The taxpayer cannot dodge or squirm. He does not fail to file his return nor does he claim more deductions than he is entitled to. He has to pay every last nickel right on the button, or do without his public utility service.

It is not a happy role for the public utilities, nor a willing one. Witness the long and only partially successful effort of the telephone industry to get out from under the heavy burden of wartime excise taxes on monthly telephone bills and long distance calls. Much of the burden remains in the form of other taxes.

Last year, for example, Pacific Telephone & Telegraph Co.—just to use a random illustration—paid 109 million dollars in taxes for itself and another 60 million dollars in excise taxes from its telephone users—adding up to one-fourth of the total amount of every dollar of revenue taken in payment for service bills. It amounted to an average of $33 for every telephone subscriber, or pretty nearly $3.00 a month. It amounts to 2½ times more than the company paid to the owners in the form of dividends.

So it is not stretching the point to say that the government has become a very important "silent partner" in the utility business without investing a penny in it. As far as taking money out of it is concerned, the government is doing three times as well as those who do invest in it.

These are realities of present-day living, of course. Living in an insecure world of high-priced armaments—to say nothing of various tax-eating social services and other government expenses—nobody can deny the tax collector his due or question the justice of rendering to Caesar the things that are Caesar's.

But the public utilities are getting more and more into a special position on this tax collection business, not only at the federal level but at other levels of government. States, counties, and cities are all trying to horn in on the smooth "painless extraction" type of tax collection which the monthly service bill of a public utility provides.

The main trouble with that from the public utility's point of view, is that a good many of its own customers do not realize what is happening. The governments are getting the money while the utilities are getting the dirty looks for the "high bills."

Not long ago in this department, reference was made to a decision of the Virginia Corporation Commission, permitting the Chesapeake & Potomac Telephone Co., serving that state, to pass on to local subscribers local sales taxes assessed against the company by certain cities in that state. It was not a question about the right of these cities to impose sales taxes on any local transaction, whether by the sale of utility service or the sale of shoes, ships, or sealing wax.

The question arose over the right of those cities, which saw fit to assess such a tax, to pass its collection by the telephone company on to the Virginia telephone subscribers in general —including those being served in cities which did not assess such taxes.

More recently, the Illinois legislature passed a bill at the suggestion of Governor Stratton to allow cities of that state to tax utility bills (gas, electric, and telephone) up to 5 per cent of gross receipts. Doubtlessly this is a necessary measure for Illinois cities or the governor would not have proposed it. In all fairness, the Illinois bill—as this writer understands it—specifically authorizes the utilities to pass on the tax to local subscribers residing in cities imposing such taxes.

Another interesting innovation in the Illinois bill was the inclusion of a collection charge authorizing utility firms, subject to such local taxes, to add up to 3 per cent (of the tax imposed) to cover the expense of collection. While this much consideration of the utility tax collector is commendable, there is little doubt that Illinois public utilities would gladly waive it, if they could be free of the whole business of collecting city taxes.

Up in New York City the modern automation of telephone service has provided one of the weirdest wrinkles yet encountered in the tedious field of utility tax collections. It seems that New York City imposed a sales tax of 3 per cent on local calls. Local calls mean calls originating and terminating within New York City. Admittedly the tax would not apply to a call originating in New York City and terminating some place else, or vice versa.

But the catch is—that is, it was a catch for the New York Telephone Co. —the service unit measuring equipment does not know the difference between a local call and a suburban call. New York City subscribers automatically are charged, as in many other cities, on the basis of call units within the common exchange area, which includes Westchester and Nassau counties. (Of course, calls for longer distances would involve toll recording and can therefore be easily differentiated.)

The New York Telephone Co., which is physically unable to make its equipment differentiate arbitrarily between city and suburban calls, had no choice except to collect the taxes from everybody in New York City, even on calls

made to the suburban counties. This was estimated to amount to about 7 per cent of the total. The money so collected was set aside for disposition, yet to be determined.

Earlier this year, a New York City real estate firm sued the telephone company in court in an effort to make it stop the collection of taxes on calls to the suburban area. The telephone company's position was in effect, "show us how we can do it and we will be glad to do so."

Earlier this month, the New York court of appeals, in a split decision (4 to 2), ruled against the real estate company's suit on grounds that it involved a question which should be settled by the New York Public Service Commission. There the matter lies at this writing. But what the New York commission can do about it is still a puzzle.

The danger in all this for public utilities is the ever-heavier tax load which they may have to place on their own customers. As states, counties, cities, school districts, and other political divisions find it increasingly hard to squeeze more taxes out of their citizens through the ordinary channels of income, real estate, personal property, and other traditional forms of taxation, the utility bill provides a ready temptation to sock the utility consumer, *as a consumer*, because in that role he cannot duck.

The very fact that it works beautifully, as far as collection is concerned, makes the temptation that much more inviting. Unless something is done to head off this trend by way of a statutory prohibition or ceiling or other restriction, where will it end?

What is there to prevent legislatures, city councils, county commissioners, and every other kind of political subdivision from getting into the act—to say nothing of Uncle Whiskers who is already getting a quarter out of every telephone dollar?

What is to prevent these government agencies from piling on the telephone bill every conceivable kind of charge, from garbage collection to fire department protection—simply because the local communities are having trouble collecting them any other way.

If we don't watch out, the utility business may find itself in the predicament of the wartime millionaire in the popular musical comedy a few years ago, who tried to dicker with the government on the basis of letting the government keep his income and he, in turn, could keep the taxes.

Dixon-Yates Scuttled

At the beginning of this year, your correspondent made a prediction about the so-called Dixon-Yates contract, under which a private power company would erect and operate a plant at West Memphis, Ark., to serve the Memphis, Tenn., area through the lines of the Tennessee Valley Authority system. The prediction was that the contract, then under heavy fire from the public power bloc in Congress, would "stick."

More recently in this department, your correspondent made some comments about public power bloc failing in its effort in Congress to wreck the contract through the voting on the TVA appropriation bill.

Since that time President Eisenhower has ordered the cancellation of the Dixon-Yates contract. So it would seem that the prediction was wrong. By way of explanation, however, it might be said that the public power critics of the contract in Congress were not responsible for the cancellation, no matter how much they will try to claim credit for it—if credit is the word.

As a matter of fact, the contract stood up in Congress on every vote, either in committee or on the floor. Efforts of the opposition to deny funds were voted down. And the contract itself was legally in effect, except for a routine approval of financing remaining to be processed by the Securities & Exchange Commission.

In other words, this contract, which had tended to mark an end to the federal government's steady drift towards socialized electric power supply, was canceled voluntarily by President Eisenhower—only after it had cleared every legislative hurdle. So the question of why this was done is very much in order for all forms of public utility industry which necessarily have an interest in the matter.

The reason given by President Eisenhower was the fact that the city of Memphis, for which Dixon-Yates was really intended, finally decided to build its own city plant. The President said that is what he wanted Memphis to do in the first place, instead of continuing to depend on the federal government for a supply through TVA. And with Memphis guaranteeing to take care of its own power needs, there was no further need for the Dixon-Yates project.

The President added that he thought the Dixon-Yates contract, in itself, was a good and fair agreement for the government and that he had always thought so. He thanked the utility officials for their trouble and work in bringing the plan as far as it went (construction had actually started). The government will probably settle fairly, by way of damages, for construction and other expenses incurred prior to cancellation.

But all this does not settle the real issue in back of the Dixon-Yates contract. That is a problem which still remains unsolved. The problem is this: How far should the federal government go in providing subsidized public utility services—at the expense of the general taxpayer—for the benefit of purely local communities or areas?

That is a question which is becoming more and more pressing, as the cities in Tennessee grow and their power needs increase with each passing day. The public power bloc in Congress thinks that there should be no limit. They think that TVA, having assumed the responsibility (under the early guise of providing flood control, navigation, etc.) for furnishing the Tennessee cities with power, ought to keep it up and continue providing more and more power as it becomes necessary.

The fact that this will mean more and more drain on the Treasury is regarded as unimportant, when compared with the "savings" and other benefits which the citizens of these Tennessee cities get by way of low-cost power. If the charge is made that other cities, in other areas, are getting none of these benefits (even though their citizens have to pay for it as federal taxpayers) the power bloc's answer to other areas is, in effect: "Go thou and do likewise."

They would blanket the nation with a dozen or more replicas of the TVA, each requiring federal subsidy. Everybody would then, presumably be getting benefits, except the business-managed, tax-paying electric utility business, which would inevitably become extinct.

There are alternative solutions: The cities could be made to take the responsibility for providing their own power—as Memphis voluntarily agreed to do.

Or the power could be developed by tax-paying private companies and sold to the government at a fair price—for transmission and distribution to these cities—also at a fair price. That was, in essence, what the Dixon-Yates contract amounted to—although it was unfortunately complicated by the intervention of the Atomic Energy Commission as a contract party.

Or the TVA itself could be reorganized as a stock corporation and be required to pay its own way (in the form of interest on federal investment and tax payments equivalent to what private companies have to pay). This TVA stock, originally owned by the federal government could then be sold

(Please turn to page 36)

The OPERATOR'S CORNER

by MAYME WORKMAN, Traffic Editor

NOW that more than half of the telephones in the United States are dial operated, it may be of interest to recall where the first dial installation was made. According to the history of the Telephone industry, the Strowger Automatic Telephone Exchange of Chicago opened their first installation in LaPorte, Ind., on Nov. 3, 1892.

According to the February issue of TELE NEWS, the magazine of General Telephone Co. of Indiana, Inc., the following message appeared on the inside page of invitations that were issued to the installation services:

"The city of LaPorte, Ind., situated 60 miles from Chicago on the Lake Shore and Michigan Southern Railroad, is the first city in the world to adopt an Automatic Telephone Exchange.

"Under a franchise granted July 18, 1892, by the City of LaPorte to the Strowger Automatic Telephone Exchange, a system has been completed under its patents and is now in operation.

"This invitation is issued for the purpose of convincing by a practical demonstration to the electrical experts and to the scientific world, that through this system a degree of perfection has been reached that will be of great commercial value and enhance manyfold the uses of the telephone.

"We will demonstrate that this system entirely obviates the many annoyances to which subscribers are at present subjected, beside being much more economical than the system now in use.

"A special train for LaPorte will leave the Lake Shore and Michigan Southern depot (Van Buren St.) Thursday, Nov. 3, at 10:30 a.m., returning to Chicago at 5:45 p.m. Lunch and refreshments will be served on the train."

According to TELE NEWS, service was to be furnished according to the franchise to an applicant without charge for two years in return for the franchise privilege. All lines were metallic with the positive of No. 14 iron wire and a common No. 6 copper return. Some of this old No. 6 and No. 14 wire still hangs in the attics of the older residences.

The first switchboard looked very much like a billiard table with wires running the long way to the table top. Connector rods from each line ran widthways. These rods were channeled like a screw, and a wiper traveled forward and backward as the rod was turned. When a subscriber dialed a particular number, this rod turned a certain number of turns carrying the wiper the designated distance across the table to the line selected by the calling party. The board had a minimum of 100 lines and there were 155 telephones in service when it opened . . . it had cost the Strowger Automatic people $45,000. The Associated Telephone Utilities System purchased the LaPorte exchange in 1930.

Speaking of telephone history in the making, the following instructions for using the earliest telephones appeared in the first Chicago issue of the TELEPHONE JOURNAL, a combination directory and magazine, in October, 1878:

TO CALL THE CENTRAL OFFICE, turn the crank on the bell strongly, at the same time pressing upwards the knob on the bottom. The call will be answered by the ringing of your bell. Then turn the switch to the right hand button and use your telephone.

"I DON'T CARE HOW MANY THOUSANDS OF PEOPLE ARE DEPENDING ON YOU—YOU CAN'T LIST THEM AS DEPENDENTS!"

When you are called from the central office, answer by ringing your bell the same number of times as your call, i.e., if your call is three, answer three; then turn the switch to the right and use your telephone. Speak clearly and distinctly, with your lips gently touching the telephone. When you have finished, turn the switch back to the left and hang the telephone on the hook provided on the bell.

In requesting connections with other subscribers, first give the name of your own firm, then the name and location of parties wanted. While waiting for the connection to be made, turn your switch to the left, and as soon as the parties desired are connected on your wire the operator at central office will ring your bell once as a signal that the connections are made. When you have unished, hang the telephone on the designated hook, turn the switch to the left, and ring the bell once as a signal for the central office to disconnect the wires.

Sounds complicated, doesn't it? And it probably was, particularly for people who only used the telephone on rare occasions.

It's always interesting to delve into past history, particularly when it involves the business in which we are engaged.

Traffic Questions

(1) When the outward operator reaches an intercepting operator and she requests additional information which you cannot furnish, is it generally desirable for her to deal directly with the calling party?

(2) If an extension is DA and a person has not been specified, how should the operator proceed?

(3) How should a "room telephone DA" report be given?

(4) When you receive a report of "room telephone DA," if the PBX attendant also reports that the called party cannot be found, should this information be included in giving the report to the calling party?

(5) When should a subsequent attempt be made on a "room telephone DA?"

Answers are presented on page 40

THE PLANT MAN'S Notebook

by Ray Blain, Technical Editor

MODERN line construction trucks have many new features, recently added, that make the work both easier and at the same time potentially safer.

An intercommunication system for the construction truck is the latest of these new devices to come to our attention. This system operates from the truck battery and is used between the crew leader or foreman and the truck driver during the handling of poles and maneuvering of the truck.

The system consists of a handset for the crew leader and a headset for the truck driver, connected by 50 feet of rugged cord. A 100-foot extension may be added when poles are being set some distance from the truck, as when a winch line is blocked to another pole.

The main advantages claimed for this intercommunication system is the promotion of safety during pole erecting by providing positive and clear directions to the driver. This system has proven preferable over shouts and hand signals.

With the movement of the truck under positive control, the other members of the crew go about their work undisturbed by shouts and signals. Furthermore, it tends to prevent other members of the crew from attempting to help direct the work.

There is definitely a public relations value for the intercommunication system in urban areas as the work can progress without undue noise.

Another worthwhile addition to the modern line construction truck is a gas-engine-powered air compressor. This unit is usually mounted on the rear of the truck. The compressor will power a variety of useful tools, among which are tools to break concrete, drill and dig holes in rock, drill holes in poles, drive pole steps and ground rods, and tamp pole holes.

This is a far cry from the old days when the writer worked on a construction gang down in Oklahoma. The line truck used then was a wagon drawn by two contrary mules. No power tools were available and it was necessary to do everything the hard way. We had not heard of a safety program in those days and serious accidents were not uncommon.

Telephone construction work at the present time is a pretty good way to earn a living.

•

We are in receipt of a letter from H. D. Straughn, secretary of the Oklahoma Telephone Association, in which he enclosed the accompanying diagram and instructions for assembling a drainage unit that is equivalent to the Western Electric No. 104-A. However, the parts for this "Make-it-Yourself" unit can be assembled and mounted at a cost of only about $4.00.

Nothing new is claimed for this unit, as it has been described in trade publications and books of the industry for many years past. The method of assembly and mounting is, however, causing renewed interest.

The Oklahoma Telephone Association has distributed instructions for the assembly of this unit to all of its people and they are having good success in constructing the devices and placing them in operation. The Oklahoma association is also receiving numerous requests from other states for complete information on this unit.

The following instructions on the assembly and installation of the drainage unit are offered for your consideration:

Will reduce to a safe value, 60 cycle induced voltage to ground on open wire metallic circuits that closely parallel power distribution systems.

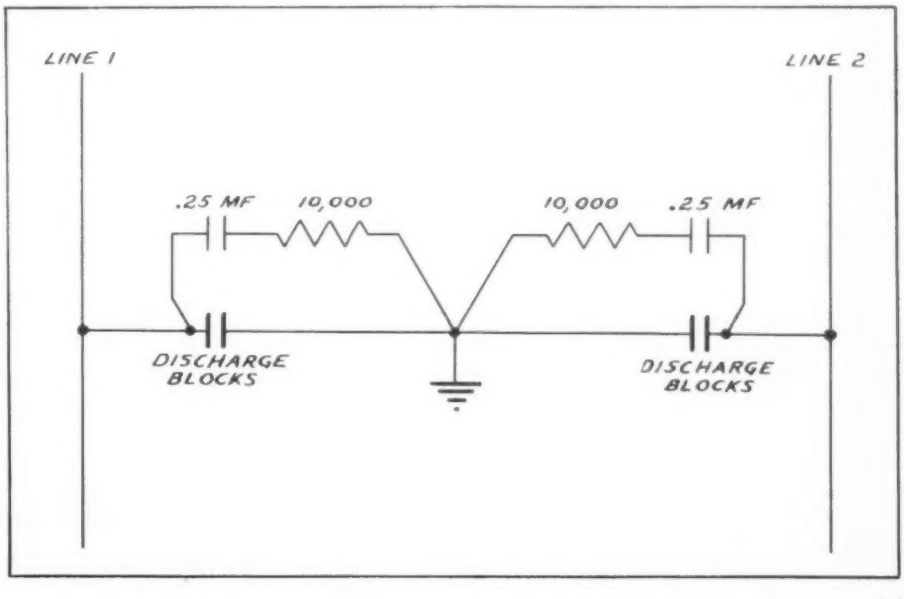
Will hold the voltage to less than 50 volts for exposures up to 10 miles of parallel.

For the protection of the unit and to serve as a housing, use a standard station protector—such as the Cook-07 or the Reliable 1000.

Capacitors and resistors can be obtained from radio supply firms, and the station protectors from the usual telephone supply houses.

By eliminating the fuses and using only the discharge blocks, space is available inside the protector housing to mount the capacitors and resistors.

Each assembly consists of: two oil-filled capacitors (preferable) rated 1,000 volt, DC-.25 microfarad (+20, —10 per cent); 2-resistors 10,000 ohms + or —10 per cent, rated 40 watts.



Note: Do not attempt to use either the W.E. Co. 104-A or this unit on circuits using 60 cycle ringing to ground as the protector is designed to drain 60 cycle AC to ground.

A good ground connection is required for the center tap of the unit. To make this connection, three driven rods, spaced 3 feet apart in line with the pole line are recommended. These rods should all be bonded together and connected to the protector with No. 6 WP Copper Wire.

•

A long-time friend of the writer, C. K. Budd, who works for the Western Electric Co. at 195 Broadway in New York City, completed 35 years of continuous service on June 6. From all indications, "Chet" is good for at least 35 years more.

In the Seattle-Tacoma, Wash., airport recently, we noted an attractive picture of an operator wearing a headset installed on the directory rack near a line of public telephone booths. The following sign was beneath the picture:

"I'm here to help you. If you need assistance in placing a call from this airport, I am ready to help. Dial 991. Please deposit 10 cents before dialing. It will be refunded. Need change? Change is available at the insurance desk, center lobby.—Your Airport Telephone Assistant."

This arrangement appears to be entirely satisfactory and people were making numerous toll calls without the assistance of an attendant. There is every indication that the public toll attendant will soon be a thing of the past.

PLANT MAN'S QUIZ

by RAY BLAIN, Technical Editor

Q. We'd appreciate very much receiving information on the construction of an exploring coil which may be used to locate underground pipes or cables by the use of a tone test set.

A. Several test sets of this type are on the market and we suggest that you consider the purchase of one rather than to attempt local fabrication. However, if it appears more desirable to make one up locally, we are advised by Daniel Seitz that the following arrangement will operate satisfactorily:

Wind about 150 turns of No. 28 insulated wire on a wooden form 18 inches square. This coil may be protected by the use of a plywood cover and should be connected to an ordinary head receiver.

The coil should be held with the flat side parallel to the earth while in use. An amplifier may be connected between this coil and the receiver if a louder signal is required. This is not necessary in most cases, however.

One side of the tone test set should be connected to the pipe or cable to be located and the other side grounded.

•

Q. We are having problems in connection with the provision of individual line service for customers who are moving into the country a few miles from our city limits. We realize that some day we will be forced to expand our outside plant to provide this service, but we are not able to do so at this time. In your opinion, would the use of subscribers' carrier systems prove economical in our case?

A. There are many cases wherein subscribers' carrier systems may be used economically over distances of several miles. It is suggested that you confer with the manufacturers of these carrier systems and determine whether or not they will prove-in for the provision of the service you mention.

You might also consider the possibility of stringing six- or 16-pair rural distribution cables on your existing open wire lines to provide this extra service until such time as you are able to rebuild your distribution plant.

Often, it is possible to string two or more of these cables on existing open wire pole lines without overloading them.

•

Q. We are having considerable trouble with the arcing of relay contacts on our dial telephone switching equipment. Can you suggest a remedy?

A. There are several things which might be the cause of this difficulty. It may be that the relays are not adjusted and margined properly. Then, also, there may be some trouble in the spark suppression circuits on the relays involved.

It is suggested that you refer this trouble to the manufacturer of your equipment. We are certain that they will be glad to determine the cause of your trouble and recommend a remedy.

•

Q. Can you tell us what is the maximum resistance permissible for a good central office ground?

A. It is always highly desirable to have the resistance of any office ground as low as possible.

This is necessary in order that the voltage on the frames and other grounded parts of the exchange remains as near zero (ground) as possible. This is most important during a power cross of lightning discharge on the system. The resistance of a good office ground may be as low as 2 ohms.

Grounds from 2 to 5 ohms may generally be obtained and in most cases can be considered satisfactory.

•

Q. Will the printed circuit technique ever be used to advantage in the manufacture of telephone equipment? Where can one obtain information on this subject?

A. We have had the opportunity on various occasions to examine laboratory experiments which indicate that this technique will eventually be rather extensively used in the fabrication of certain types of telephone communication equipment.

A booklet titled "Printed Circuitry" is available from the Cornell-Dubilier Electric Corp., South Plainfield, N. J. This booklet describes the various types of base materials, laminate characteristics, and circuit designs.

•

Q. Can you tell us why we have never developed concrete poles for use in the telephone industry? We have used concrete for about everything else, so why not for poles?

A. Various attempts have been made to develop concrete poles down through the years, but as far as we know none of them has been considered successful. They are too expensive, heavy, difficult to handle and inconvenient to work on.

After all, nature has designed an almost perfect pole in that it will handle equal strain in all directions. Then, too, the wood preservers have done such a good job that present-day poles last practically forever.

No, we must admit that we can see no need for concrete poles in the forseeable future.

...up of Automatic's research scientists ...ses application of a new transistor-equipped ...t, still in the "breadboard" stage.

A transistorized telephone that "speaks up" for the hard-of-hearing— a transistorized operator's headset to compensate for reception difficulties: Automatic's rapidly-growing special-purpose equipment line provides better service, builds good will and revenue.

...RPOSE EQUIPMENT

AUTOMATIC ELECTRIC

ORIGINATORS OF THE AUTOMATIC DIAL TELEPHONE

AUTOMATIC OFFERS A FULL LINE OF SPECIAL-PURPOSE EQUIPMENT TO MEET DIFFICULT RECEPTION CONDITIONS.

ROANWELL "CONFIDENCER"

Most economical device you can buy for noisy locations. Fits Type 41 handset (used with Types 40, 43, 47, and 50 Monophones). Contains special sound chambers that neutralize room noise. Slope of mouthpiece brings user's lips closer to insure maximum effect of voice on transmitter.

TYPE 25 HANDSET FOR MODERATELY NOISY LOCATIONS

Inexpensive, yet effective. Ideal for noisy sites where enclosed booths are not practical. Caller presses button on handset to cut out transmitter when listening, releases button to talk.

TYPE 27-A HANDSET FOR THE HARD-OF-HEARING

A touch of the button on the handset boosts reception to 12 db above normal - - a level which has proved very satisfactory to the average hard-of-hearing subscriber. Button can be locked at high-gain position.

TYPE 27-B HANDSET FOR EXTREMELY NOISY LOCATIONS

Receiver amplifies sound to 12 db above normal when caller presses button. Cup-shaped mouthpiece catches caller's voice while excluding surrounding noises.

TYPE 38 SPECIAL ANTI-NOISE HANDSET

For locations where high-pitched whining sounds are prevalent, such as in power stations, or in rooms housing oil burners or diesel engines. Special mouthpiece and damped diaphragm transmitter cut off a maximum amount of noise.

CALIFORNIA INDEPENDENTS

Gain 500,000 Stations in 8 Years

Increase is 165 per cent more than that during 50 years prior to year 1947, convention told

FEATURING an outstanding panel of speakers and forums, the 36th annual convention of the California Independent Telephone Association was held at the Ambassador Hotel in Los Angeles on June 9 and 10. Attendance stood at an all-time high, as some 900 representatives of California's 58 Independent companies, delegates from Independents in bordering states, Bell connecting company personnel, commission and manufacturers' representatives, packed the lobby and halls.

With Willard Wade, president of the association and vice president of California Interstate Telephone Co., presiding, the program was launched with an official welcome to the city of Los Angeles.

Speaking on "A Decade of Independent Telephone Company Progress," Mr. Wade said that the telephone growth experienced in California in the past 10 years is convincing evidence that ours is a vital and progressive industry.

The total plant investment of the 79 Independent companies operating in California at the end of 1946 was $46,717,000, for an average investment of $153 per telephone, he said. As of the end of 1954, there were 58 Independent operating companies in the state with a total plant investment of 248 million dollars, with the investment per telephone standing at $305. The plant investment has increased by $201,300,000 during the eight-year period, or about 430 per cent. Investment per telephone has increased 100 per cent during the same period.

The 58 Independents serve more than 816,000 stations in 170 exchanges. This is an increase of more than a half million telephones in eight years, or 165 per cent more than the total station increase during the 50 years prior to 1947.

Mr. Wade also observed:

"We are still plagued by shortages of central office equipment. The period of time for engineering, manufacture and installation in many cases is more than two years. In fast-growing California, large subdivisions and towns are built in less than two years, and many times are completed with all utilities except telephone service.

"Our associate manufacturing members have the same growth problem as member companies. But it is hoped that our manufacturer friends will increase their engineering and manufacturing facilities to the extent that the time required for making central office equipment will be greatly reduced."

William H. Gorman of the California Public Utilities Commission told his audience: "The duty of a commission is to secure for the public adequate and reasonable service at rates which are fair and reasonable, both to the ratepayer and to the utility. This calls for a balancing of many, and at times differing, interests; however, you may rest assured that the commission will, at all times, give your problems, large and small, full and careful consideration."

Turning to the work of the commission, Mr. Gorman said, "Since your convention last year the commission has issued some 1,500 decisions on formal matters. This is at the rate of about 30 per week. About an equal number of commission resolutions have been adopted. . . ." He then described the impact of these actions upon the telephone industry.

"Increasing population and increasing telephone saturation demand good programming and sound estimates to keep ahead of service needs and requirements," Mr. Gorman said. "This is particularly true in your industry, in view of the long interval between engineering and the in-service date of plant additions. It is significant, I think, that 91 per cent of the fixed capital invested in plant and employed by telephone utilities in California has been installed since Jan. 1, 1946, or during the postwar period. This compares with 70 per cent for the electric utilities and 71 per cent for the gas utilities in California.

"The commission is aware that the building of utility facilities requires the expenditures of large amounts of money. This past year the commission authorized the issuance of stocks, bonds, and notes in the agregate amount of $475,340,441 for all types of utilities. The amount of the issues for telephone utilities was $90,225,239.

"Announced construction programs for 1955 and 1956 of California utilities are at record levels and will require additional financing. It appears that some of the smaller telephone companies have experienced difficulty in raising money on reasonable terms, other than from the REA. It appears to be inevitable that many of the smaller telephone companies will be forced to rely on REA financing unless private sources of capital are made available to such companies on a realistic basis."

Comparing the sales philosophy of the telephone industry with that of other industries, Mr. Gorman said that, although there are more than 51 million telephones in service in the United

States, there are about 60 million motor vehicle registrations, some 127 million radios and, despite the relatively recent invention of television, some 33 million television sets.

He then emphasized the need for telephone companies to inaugurate selling programs for the purpose of stimulating revenues without corresponding increases in operating expenses.

Leon F. Roberts, recently appointed director of information of the United States Independent Telephone Association, reviewed the present and projected activities of that organization. He centered most of his remarks on the results of the USITA's national advertising program. He said:

"Already its (the advertising program's) beneficial results to the industry are apparent on every hand. An indication of the results of our industry's effort to 'let its light so shine' and to tell the world that we are an important part of the world's communication system, comes from the fact that a large number of Independent companies have advised us that the increased availability of capital from private and commercial sources to meet growth and expansion needs can be traced directly to advertisements which have been apearing regularly in *Time* magazine, *U.S. News and World Report*, and *Better Farming*. . . .

"Advertising doesn't cost—it pays! Thus might I paraphrase the Bell System's well-published slogan 'long distance doesn't cost—it pays!' You have seen those words before, haven't you? They are not original with me.

"They form one of the several apt slogans of the Bell System in its nationwide merchandising of the chief thing the telephone industry has to sell, namely, the completed telephone call, whether it be on long lines or local circuits. . . .

"If any are skeptical that we are not getting our money's worth from our national advertisements, may I be so bold as to predict universal acceptance of it as time marches on. . . .

Directors and officers of the California association. Front row, left to right: RICHARD D. CROWE, president; F. H. MacGOUGAN, first vice president; J. CURTIS NEWMAN, second vice president. Back row, left to right: C. F. MASON, JACK MAGUIRE, DONALD STRAHL and WILLARD WADE.

"Why advertise? Because you Independents have something to say about your business that should be widely known. Any firm has little legitimate reason for being in business—and faint hope of staying in business—that feels it has nothing worth saying about itself.

"Advertising is communications. Advertising is the cheapest form of business communication ever devised. Advertising is a specific means of communication as a letter, a telephone call, or a salesman's call.

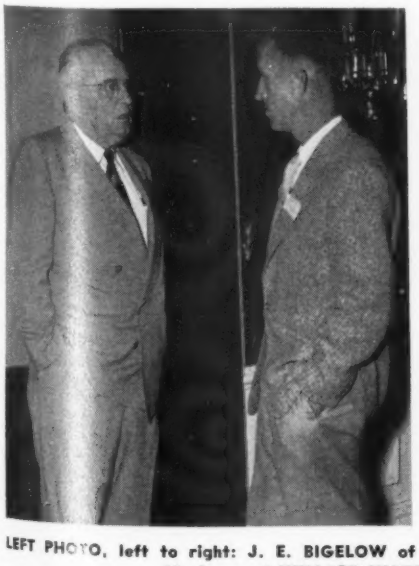
"Advertising is public relations. The national advertising program was launched by your association as part of a *planned* public relations program —a long-range program—designed to create universal good will for the Independent telephone industry, and that means good will for every telephone company—large, medium and small—in the land."

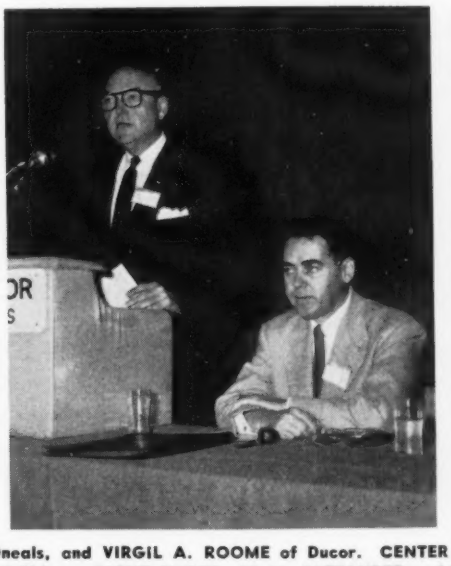
A report on "Independent Telephone Company Separation Studies" concluded the first morning's session of the convention. Arthur W. Lambert of California Water & Telephone Co., who also is chairman of the USITA Toll Compensation Special Sub-Committee, said that the purpose of a study now being conducted is to analyze the present schedule of toll compensation and to recommend new schedules.

Separations now are being made on the basis of a schedule adopted in 1952, he said. Toll cost information based on the present study shows an increase in expenses, "leading us to believe that the schedule set up in 1952 is inadequate."

To overcome the "settlement lag," the committee is encouraging companies to simplify commercial and accounting procedures, Mr. Lambert reported. In the course of the study the committee has prepared IBM cards for every Independent exchange in the United States showing size of the exchange, whether it is part of a single or multi-exchange company and whether the company serves more or less than 10,000 stations.

The afternoon sessions of the first day were given over to panel discus-





LEFT PHOTO, left to right: J. E. BIGELOW of Oneals, and VIRGIL A. ROOME of Ducor. CENTER PHOTO, left to right: E. M. BLAKESLEE of Santa Monica, and WILLARD WADE of Bishop. RIGHT PHOTO: M. H. ALEXANDER and EUNICE DuBOIS, both of Taft.

LEFT PHOTO, seated, left to right: BEULAH SHAEFFER of Dos Palos; MRS. WILLIAM SEBASTIAN, THOMAS HAAR and MRS. HAAR, all of Kerman. Standing, left to right: L. L. LEONARD of Dos Palos, and WILLIAM SEBASTIAN of Kerman. RIGHT PHOTO: left to right: FRANK CRISTICH, THOMAS OGLESBY, KEITH VINE, JAMES SHOBE and OWEN RABURN, all of San Francisco.

sions of four major operational segments of the industry.

"Today's Commercial Department Opportunities" panel consisted of Allan R. Stacey, Sunland-Tujunga Telephone Co., who reviewed the collection policy of his company; Virginia Williams, Evans Telephone Co.—"Problems of Small Exchanges"; Fay U. Morlan, The Pacific Telephone & Telegraph Co., who discussed the principles and procedures of training service representatives; and Willard A. Hanley, General Telephone Co. of California—"Business Office Sales Promotion."

J. P. Maguire of Kern Mutual Telephone Co.; Keith Vine of California Water & Telephone Co.; John H. Evans of Evans Telephone Co., and John F. Donovan of California Public Utilities Commission, headed a panel considering "Accounting for Overhead Costs in Construction." Capitalization of general office expense, and inventory control, were discussed at some length.

On the "Traffic Service Demonstration and Discussion" panel were Owen G. Jarboe of General Telephone Co. of California; Gladys Chandler of California Water & Telephone Co.; Marie Harr of Kerman Telephone Co.; A. H. Wastervelt and W. O. Adams of The Pacific Telephone & Telegraph Co., and A. H. Taylor of California Interstate Telephone Co.

The conference was opened by Mr. Jarboe whose department personnel presented a brief discourse on selection of operators, emphasizing the factors which an interviewer would need to consider to insure employe efficiency and permanency.

In connection with operator training, a photographic energized training unit was demonstrated, with operators' telephone circuits wired to a public address system to enable the audience to hear the handling of practice calls.

Other topics discussed were "Duties at the Small Dial Service A and Toll Board" and "Improvement of Service Through the Control of Force Losses."

On the Plant Operations panel, Donald H. Strahl of Gilroy Telephone Co. discussed the necessity for proper advance plant planning on the part of the Independents.

George Bray of The Pacific Telephone & Telegraph Co. brought the panel up to date on DDD, the *Direct Distance Dialing Program.*

Methods of suspending and deadending plastic insulated rural distribution were suggested by E. J. Morri-

(Please turn to page 35)

LEFT PHOTO, left to right: BEN HARVEY, GRANT SMITH, A. J. BARRAN and AL HART, all of Santa Monica. RIGHT PHOTO, left to right: R. W. REPLOGLE of Pacific Telephone & Telegraph Co.; W. W. STAHL of San Francisco; R. W. BRUCE of Pacific Telephone & Telegraph Co.; LYNDON FARWELL of Los Gatos, and W. T. WATTS of Pacific Telephone & Telegraph Co.

Solar Battery Now Twice As Efficient, Scientists Find

THE EFFICIENCY of the Bell solar battery has been practically doubled in the one year since its announcement, Bell Telephone Laboratories disclosed recently.

The battery is man's first successful device for converting sunlight directly into substantial amounts of electricity.

Bell scientists, who had already achieved a 6 per cent efficiency with the battery when it was first shown, have since steadily increased its efficiency until by Apr. 19 they had experimentally obtained 11 per cent—an efficiency comparable to that of the best gasoline engines and more than 20 times higher than that of the best photovoltaic devices available.

The Bell laboratories team responsible for the increased efficiency and further development of the Bell solar battery includes K. D. Smith, E. J. Stansbury, C. J. Frosch and D. F. Ciccolella.

Trial models of the improved battery will have their first practical test as part of the telephone system this summer in Americus, Ga., where controlled experiments will determine the usefulness of the battery in supplying power to amplifier stations on rural telephone lines.

The Bell solar battery is an extremely simple looking apparatus made of wafers of especially prepared silicon. Silicon, one of the world's most abundant elements, is a semiconducting material that is extremely sensitive to light.

The improved "cells" or silicon wafers can now be electrically linked together to deliver power from the sun at a rate of up to 100 watts per square yard of silicon surface.

The increased efficiency of the battery has been achieved primarily by refinements in the fabrication process, aimed at reducing internal losses in the individual cells.

The battery was invented by a three-member team of Bell laboratories scientists—Gerald L. Pearson, Calvin S. Fuller and Daryl M. Chapin—and announced on Apr. 25, 1954.

Although the Bell solar battery is a relatively new device and still in the research stage, small solar converters like those now being produced experimentally at the laboratories hold great promise for future use in communication systems where there are small power requirements.

Research also indicates that these batteries can be used as power supplies for low-power portable radio and similar equipment.

Bell engineer with a model of a solar battery mounted on a section of telephone pole. This model contains 432 disks, arranged in 48 units of nine disks each. During daylight hours the battery will power terminal equipment directly, and at the same time, will charge a storage battery to provide power for nighttime operation and periods of lowered sun intensity. Flexible features of the mounting allow the face of the solar battery to be tilted to the most favorable angle for maximum sun exposure.

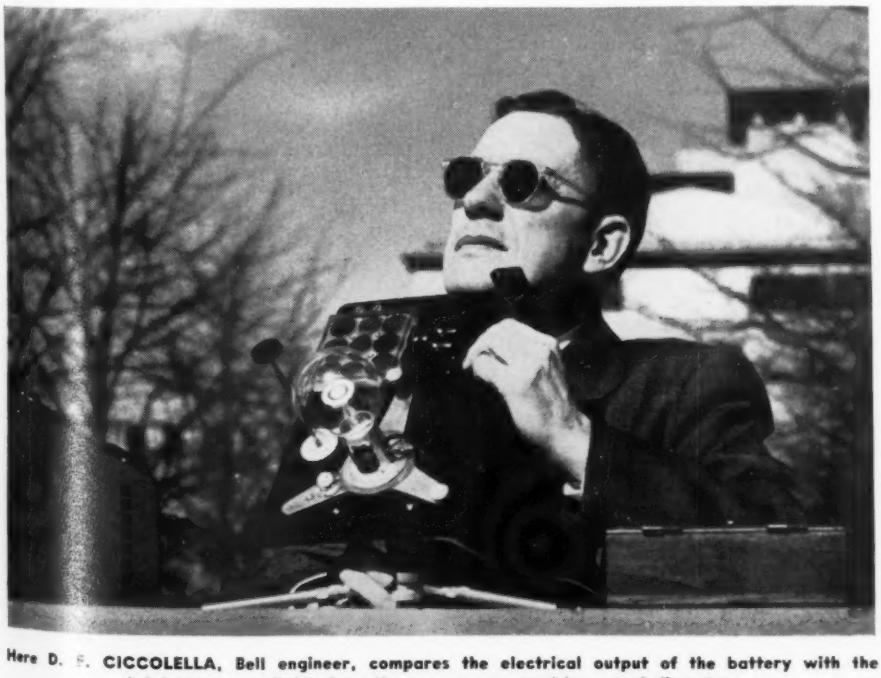
Key to the laboratories' technique for producing the batteries is the controlled introduction of a foreign element, boron, into a microscopic layer near the surface of a thin slice of arsenic-doped silicon.

Treatment under gas at high temperatures permits the introduction of minute traces of boron into the atomic structure at the surface of the silicon.

Introduced at a precise rate and under carefully controlled conditions, the boron reaches a depth of less than 1/10,000 of an inch.

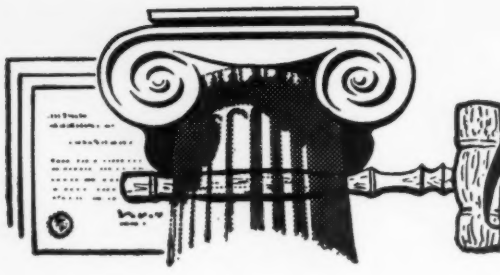
This thin layer and the remainder of the silicon wafer form what is known as a p-n junction, the heart of the battery.

This same type of junction built into a single crystal of germanium is the basis for the original junction transistor, another invention of the laboratories.



Here D. F. CICCOLELLA, Bell engineer, compares the electrical output of the battery with the total energy available from the sun, as measured by a pyrheliometer.

"In any utility rate case two words always are heard more often than any others. These two words are well known to all persons concerned with rates and rate-making. They are 'just' and 'reasonable.' These two words mean different things to different people. To stockholders, they mean higher dividends. To customers, they mean lower bills. To employes, they mean higher wages. To regulatory authorities, they mear something in between that will give a measure of satisfaction to all parties concerned."—WILLIS GALE, *chairman of the board, Commonwealth Edison Co.*



Courts and Commissions

Oklahoma Commission Approves Purchase of Four Exchanges

The Oklahoma Corporation Commission on July 15 approved the application of the Holt Telephone Co. to buy the Oklahoma properties of the Oklahoma-Arkansas Telephone Co., Poteau. These properties consist of the exchanges at Poteau, Heavener, Wister and Howe, and toll lines between those towns. **(Ed. Note:** This is a correction of a report which appeared in TELEPHONY, July 2, p. 34, stating that the purchase had been disapproved.)

This was the second time the commission has had the application under consideration. The matter was initially heard on Apr. 14, and has been under advisement since that time.

In conjunction with the approval of the sale of the property, the commission also allowed an increase in rates for the four exchanges involved.

As a part of the amended application the Holt Telephone Co. represented that it would make considerable capital improvements in the properties, including converting the Wister and Howe exchanges to automatic equipment.

The transfer of properties will take place on Aug. 1, at which time the new rates will be effective.

New rates will be as follows:

	Poteau Heavener	*Wister Howe*
One-party business	$5.50	$5.00
Two-party business	5.00	4.50
One-party residence	3.75	3.50
Two-party residence	3.25	—
Four-party residence	2.75	2.75

The rates for Wister and Howe will not be increased when automatic service is installed, but such rates were established for dial service as well as for magneto service presently used in such towns.

Minnesota Commission Approves Two Sales, One Rate Raise

Minnesota Railroad & Warehouse Commission has authorized the sale of two Independents and a rate increase for a third.

The commission granted approval to the Central Telephone Co., La Crosse, Wis., on July 7 to buy the Okabena Telephone Co. (98 stations), and on July 8 to buy the Elm Creek Telephone Co., Sherburn (47 stations). Central's Lakefield exchange rates are to apply at Okabena, and its Sherburn exchange rates will apply to the former Elm Creek company subscribers.

Rate increases were authorized on July 7 for the Central Iowa Telephone Co., Cedar Rapids, Iowa, at each of its seven Minnesota exchanges, applicable on conversion to automatic operation. Operating revenues, after all dial rates are in effect, are expected to rise from the present $155,481 to $162,960, with net income up from $14,365 to $36,513. On the new rate base of $625,000, this would be a 5.84 per cent return.

The Central Iowa company serves approximately 1,422 local and 1,616 rural stations; also switches 20 stations.

South Dakota Co-op Buys More Exchanges; Rates Scheduled

The Sully Buttes Telephone Cooperative, Highmore, S. D., has acquired the Ree Heights exchange from Ree Heights Telephone Co., also the Harrold Telephone Exchange from M. D. Vandarwarka, it was reported on June 23. This is in addition to a number of switched line companies operating out of Wessington, Highmore, Harrold and Blunt, also bought by the Sully Buttes Company (TELEPHONY, July 9, p. 48).

The Sully Buttes company has been allocated an REA loan. The South Dakota Public Utilities Commission in approving the acquisitions also set rate schedules, sample rates from which are: $9.25 for one-party business; $6.00 for one-party residence and $4.75 for four-party residence service.

Missouri Commission Authorizes Sale of Two Companies

Southern Missouri Telephone Co. won state authority on June 24 to buy the Eminence-Winona Telephone Co. from W. C. and Wilma Deckard (TELEPHONY, May 28, p. 48).

The Missouri Public Service Commission also authorized the K. L. M. Telephone Co., Rich Hill, to buy the Papinsville Telephone Co. in Bates County from Clyde E. and Ruth D. Raps (TELEPHONY, April 23, p. 70).

Idaho Commission Schedules Mountain States Rate Hearing

Idaho Public Utilities Commission scheduled a hearing for July 14 in Boise on a petition of Mountain States Telephone & Telegraph Co. for "emergency" authority to continue charging its present telephone rates.

The Idaho Supreme Court gave the company until July 20 to return to the rates in effect before May, 1953, when it obtained a court order permitting the higher charges (TELEPHONY, July 2, p. 32).

The high state tribunal set the date after upholding the commission's denial of the company's application for a rate increase.

Mountain States subsequently asked "emergency" authority to continue charging the higher rates until such time as the commission can hold full hearings on a new rate increase application.

The new hearing scheduled by the commission will not involve the $2,300,000 that has been collected and held under bond since May, 1953. Mountain States has been ordered to return that money, representing the difference between old and proposed rates, to its subscribers.

Instructions to Mountain States for refunding the $2,300,000 in court-impounded funds to its Idaho customers were outlined in a court order filed on June 24 by Third District Judge Merlin S. Young in Boise following a hearing and conference with attorneys for the company and the Idaho commission.

The company said all refunds would be applied to amounts outstanding on subscribers' bills as of the first billing period date following completion of refund computations. Any credit balance still outstanding after the application of refunds will be paid to the subscriber by check.

Mountain States had at first asked that it be allowed to effect the refunds by crediting telephone accounts with the sums on future service, but Assistant State Attorney General Joseph Leggat objected and insisted that the refunds be made in cash. This method was finally agreed upon by the company.

The company had earlier agreed to abide by an order giving customers the option of deciding whether they wanted their rate refund in cash or in credit. This would have involved the inclusion of slips in monthly statements with a possible check mark and signature method used to indicate the desired method of refund. Following a conference with Judge Young however, the company decided such a method of refund would involve too much difficulty.

General of S.W. Gains Increases For Six Exchanges in Texas

The following rate increases in Texas were granted General Telephone Co. of the Southwest, San Angelo, in June:

	Old	*New*
Big Lake		
Common battery, 893 stations		
One-party business	$5.25	$6.35
Two-party business	4.25	5.00
One-party residence	3.00	3.65
Two-party residence	2.50	3.10
George West		
Dial, 329 stations		
One-party business	6.75	8.50
Two-party business	5.50	7.00
One-party residence	3.75	4.50
Two-party residence	3.25	3.75
Perryton		
Dial, 1,500 stations		
One-party business	8.50	9.25
Two-party business	6.75	7.50
One-party residence	4.25	4.75
Two-party residence	3.50	4.00
Four-party residence	3.00	3.25
Buda		
Magneto, 175 stations		
One-party business	4.50	6.00
Two-party business	3.75	4.75
One-party residence	2.75	3.50
Two-party residence	2.25	3.00
Aqua Dulce		
Magneto, 116 stations		
One-party business	4.00	6.00
Two-party business	3.50	4.50
One-party residence	3.00	3.75
Two-party residence	2.75	3.25
San Angelo		
Dial, 20,338 stations		
One-party business	9.75	11.50
One-party residence	4.80	5.25
Two-party residence	3.70	4.30
Four-party residence	3.20	3.60

After a delay of almost two years, the Oklahoma Corporation Commission on June 29 granted the company a rate increase of $30,032 annually, the company also reported. The additional revenue will come from increases in local service rates in 15 Oklahoma exchanges. The company had sought increases of $51,100 in revenue annually.

Washington Commission OKs Sale of Three Independents

Sale of three north central Washington telephone systems to the North Central Washington Rural Telephone Exchange, Inc., was authorized on July 11 by the Washington Public Service Commission.

The three are the Tonasket Telephone Co., Republic Telephone Co., and the East Okanogan Farmers Telephone Co.

The commission said the plants of the three are obsolete and the companies are not furnishing adequate service in their areas.

The commission stated that while the sale itself would not cause any rate increase to the subscribers of the three systems, a modernization program, planned by the purchaser, will result in rate adjustments including increases in some areas.

Ask Illinois Commission To Raise Rates and Buy

Recent cases scheduled to be heard before the Illinois Commerce Commission were: on July 19, application of the Rixman Telephone Co., Hoyleton, for increase in rates. On July 20, application of the Chesterfield-Medora Telephone Co., also for rate increases.

On July 7, application to purchase the McHenry County Telephone Co., Marengo, by Illinois Bell Telephone Co. The McHenry County company serves 785 subscribers in Marengo. Illinois Bell has about 300 customers in the rural area around the town. The commission recently investigated complaints of poor service made by McHenry County company customers (TELEPHONY, May 21, p. 37).

Oregon Independent Authorized To Make Loan, Issue Stock

On July 13, the Oregon Public Utilities Commissioner ordered that the Independent Telephone Co., Pilot Rock, be permitted to borrow not to exceed $35,000 from Stromberg-Carlson Co., to be repaid over a 20-year period with interest at 5 per cent. Part of the loan will be used to retire a Stromberg-Carlson three-year short-term loan.

The company also was authorized to sell at not less than par value 600 shares of its 5 per cent $50 par, preferred stock.

Proceeds from the sale of the preferred stock plus the balance of the new loan will be used to modernize and extend the telephone system.

California Company Authorized To Issue Preferred Stock

California Interstate Telephone Co., Bishop, has been authorized by the California Public Utilities Commission to sell 50,000 shares (one million dollars) of $20 par cumulative preferred stock at par to Investors Diversified Services Inc.

Proceeds will be used in connection with the company's $4,630,000 expansion program in the next three years.

General of Wisconsin Registers $1,000,000 of Preferred

General Telephone Co. of Wisconsin, Madison, told the Securities & Exchange Commission it wants to sell 10,000 shares (one million dollars) of its $100 par preferred stock to the public, it was reported on July 5.

In a registration statement, the General company said the stock would be offered by an underwriting group topped by Paine, Webber, Jackson & Curtis and Stone & Webster Securities Corp. Offering price and dividend rate will be furnished later.

Proceeds from the sale will be used mostly to pay off bank loans and for construction. The company also said it expects to sell one million dollars of bonds later in July to pay off some more of its short-term debt.

Missouri Commission Authorizes Sales to Independent

The Missouri Public Service Commission recently issued two orders relative to the Northeast Missouri Rural Telephone Co. The first order, effective July 11, approved the sale of the Novinger Telephone Co. to the Northeast Missouri Rural Telephone Co.

The second order, effective July 15, approved the sale of the Worthington, Arbela and Granger Telephone companies to the Northeast Missouri Rural Telephone Co.

The order authorizes the Northeast Missouri Rural Telephone Co. to construct lines, and build facilities for a modern dial system to serve Novinger, Worthington, Arbela and Granger.

Sale of Kansas Independent to S.W. Bell Recommended by FCC

Recommendations were made in Washington on June 29 that the Southwestern Bell Telephone Co. be allowed to buy the Derby (Kan.) Telephone Co., Inc., and charge Wichita rates.

Federal Communications Commission Examiner Herbert Sharfman said the area near Wichita is fast growing and that the owners of the Derby system have been unable to keep pace with demands for increased services.

Southwestern Bell proposes to install modern equipment.

Purchase of an Independent Approved by N. C. Commission

The Hickory Telephone Co. asked the North Carolina Utilities Commission on July 15 for permission to purchase the Catawba Telephone Co. The Catawba company recently was restored to operation after a fire.

The owner of Catawba Telephone is listed as Leroy P. Speen of Charlotte, N. C.

A Year's Telephone Service Offered Free with New Homes

It has been reported from Cincinnati, O., that Brune & Harpenau, builders and developers of Green Acres subdivision, decided to build three model homes to show prospective buyers. Nothing new—but wait. Cincinnati & Suburban Bell Telephone Co. was able to secure a contract for telephone service in each of the three *from the builders*.

Facilities include one-party service in each plus a choice of three or four extensions (all colored instruments to blend with decor and equipped with retractible cords).

All charges covering one year of service, the extension, installation costs, and federal taxes were paid in advance by the builders.

Equipment was installed and ready for the first day of public showing, but it will not be activated until the home-buyer takes possession, at which time billing, listing and connecting to the central office will take place.

A suitable message was attached to each instrument telling of the one-year-free telephone service arrangements. Approximately 40,000 people have visited these homes since opening day on May 15.

North Carolina Commission Approves Debenture Issue

Central Telephone Co., Charlottesville, Va., was authorized by the North Carolina Utilities Commission on July 12 to sell one million dollars worth of sinking fund debentures bearing interest at the rate of 4.25 per cent from July 1, 1955, and maturing July 1, 1975 (TELEPHONY, July 16, p. 39).

The purchaser will be Massachusetts Mutual Life Insurance Co., which holds the company's other debentures.

General of the SE Wins Part Of Rate Raise Requested

The Virginia Corporation Commission on June 23 granted a rate increase to the General Telephone Co. of the Southeast, Bluefield (TELEPHONY, Mar. 5, p. 26).

The new rates, effective July 1, are lower than the company's proposals.

The company also was empowered to establish a 10-cent charge for all local paystations July 1.

OBITUARY

DR. M. R. WRIGHT, 56, president of the Alexandria (Minn.) Telephone Co., died on July 10.

He is survived by his widow, Marcy; one daughter, Marion, and one son, James.

Michigan Bell Saves Time and Money With Photographic Copying Machines

MODERN photographic document reproduction methods—which eliminate the need for extensive hand work and tedious duplication of drawing and data—are now cutting costs, saving time, and increasing efficiency for the Michigan Bell Telephone Co.

When field personnel anywhere in the state need a copy of commercial wiring diagram, the request comes into plant service supervisor's office at Detroit headquarters.

Employed in the company's plant service division where 15,000 circuit layouts for commercial telephone systems are on file, and in its toll circuits layout work, the new technique is reported to have "paid for itself" in the first month of operation.

The new procedure, based around the use of a new development by the Eastman Kodak Co.—the Kodak Verifax Copier—swings into operation when additional copies of circuit layouts are needed for special purposes.

Normally three to 15 copies of each wire layout are prepared by the company's printing department and distributed to all interested offices and departments throughout the system.

When these are not available, or departmental copies have been misplaced, photocopying techniques are called upon to quickly fill the need for duplicates.

Photocopies can be made so fast (three or more copies of a page in only one minute) that important papers need not be out of the master files longer than a few minutes. Costs of approximately three cents per copy (when three copies are made simultaneously) are well below the time charges alone that were involved when draftsmen formerly copied original layout by hand.

Some 15,000 layout drawings are on file in the department. Requested layout must be reproduced quickly and dispatched to the field, where delay may hold up vital installation or maintenance work.

Simple to operate, the Verifax can be learned quickly by anyone in the office, so that no time is lost waiting for one operator to make a needed copy. Here a plant service clerk places original with photographic paper in light box at the top of machine, where it is exposed for 10 to 20 seconds.

In circuit layout work Michigan Bell Telephone Co. often makes photo copies of individual sections of very large drawings which are in preparation and sends them to the field for reference and advance information purposes before the large drawings can be completed for distribution.

The same technique is employed by the company to save secretarial time in producing copies of correspondence which will be of interest to several departments in the company.

CALIFORNIA CONVENTION

Concluded from page 30

son of California Interstate Telephone Co. His remarks were supplemented by H. G. Burd of Superior Cable Corp., who touched on future developments to be expected in plastic insulated cable.

M. H. Alexander of Kern Mutual Telephone Co. pointed out that the complete set of plant construction and maintenance practices is available to all California Independents through the California Association's Methods Committee. These practices, he said, are issued by General of California.

The hazard of induced and static electricity to outside plant personnel was emphasized by Maurice Gross of General Telephone Co. of California. He was followed by V. E. Valantine of California Public Utilities Commission, who explained the safety elements incorporated in the commission's General Orders covering power transmission and overhead line construction.

An exhibit of some of the newer safety equipment was displayed by General of California.

The second day's sessions opened with an announcement of new officers and directors of the association by Lyndon Farwell of Los Gatos Telephone Co. Guiding the organization during the 1955-56 term are Richard D. Crowe of Dos Palos Telephone Co., president; F. H. MacGougan of California Water & Telephone Co., first vice president; J. Curtis Newman of Coachella Valley Home Telephone & Telegraph Co., second vice president; and Neal Hasbrook, secretary-treasurer.

Directors are Messrs. Crowe, MacGougan and Newman and C. F. Mason of General Telephone Co. of California, J. P. Maguire of Kern Mutual Telephone Co., Donald Strahl of Gilroy Telephone Co., and Willard Wade of California Interstate Telephone Co.

Edwin M. Blakeslee, president of General Telephone Co. of California, reporting for the resolutions committee, submitted a memorial resolution in remembrance of the late Frank V. Rhodes, for many years secretary of the California Association, which was adopted unanimously by the assembly.

Reports of other standing committees of the association were presented by Willard Wade of California Interstate, chairman of the Pacific Coast Settlements Committee; Allan R. Stacey of Sunland-Tujunga, chairman of the Dial Service and Advertising Committee, and M. H. Alexander of Kern Mutual, chairman of the Practices and Methods Committee.

The concluding address was given by Merchandising Director E. R. Dale of The Pacific Telephone & Telegrah Co. He told of PT&T's plans for a concerted merchandising campaign, and said that plans are being developed to get a greater share of the communications dollars.

Merchandising, he said, is marketing strategy to get (1) the right product, (2) at the right price, (3) in the right quantity, (4) at the right time, (5) to the right place and (6) in the right light.

He declared that even though there are held orders on file in some areas, a strong merchandising program is desirable and necessary.

Turning to the use of the telephone in the 1920's, Mr. Dale said that although many customers have been gained, usage of the telephone remains on about the same level. This indicates that the industry has not made the telephone more valuable, more useful and more important to its millions of customers. He added:

"Merchandising is more than a big build-up of sales. I like to think of it as doing everything that we need to do to get our customers what they need when they need it. . . . Good merchandising contemplates creating the need and desire for services, rather than just accepting orders."

Friday afternoon the conventioners visited General's new Bel-Air office. There various exhibits and demonstrations of plant and central office operations were viewed, and visitors toured the modern office. Guides explained the operations of automatic toll ticketing, the 5,000 trunk analyzer developed for traffic studies, and other equipment and devices which make this office one of the most modern in the country.

Out in Centerville, Iowa, the valedictorian of the graduating junior class at Community College is a girl who would not have been able to secure her diploma without her telephone. LORETTA TODEY has graduated with high honors from both high school and college, yet she has never attended classes personally at either because of a physical handicap which would have daunted a girl with less ambition and courage. Intercom sets in classrooms and at home brought instruction to her, although she was miles away. Miss Todey had the enthusiastic cooperation of the school district and the special education department of the Iowa Department of Public Instruction, and she also gives special thanks to the Appanoose County Telephone Co., Centerville, and especially to FLOYD CLARK, for his efforts in keeping her intercom set and line connection in good working order, and for kindness and encouragement. Loretta's unusual achievements made her the feature of a national radio hookup. Above you see her rocking her valedictorian speech. Her assistant in the rear is JAMES HINDLEY, chief engineer of Radio Station KCOG, and at the right is DEAN NEWSHAM of Centerville Community College.

California W&T Company Offers $3,750,000 of Common Stock

California Water & Telephone Co.'s 200,000-share (3¾-million-dollar) offering of common stock was placed on the market on July 7. A Blyth & Co., Inc., group has priced the stock at $18.75 per share.

Proceeds will be used by the Monrovia company to help pay for planned extensions, additions and improvements to its facilities during this year.

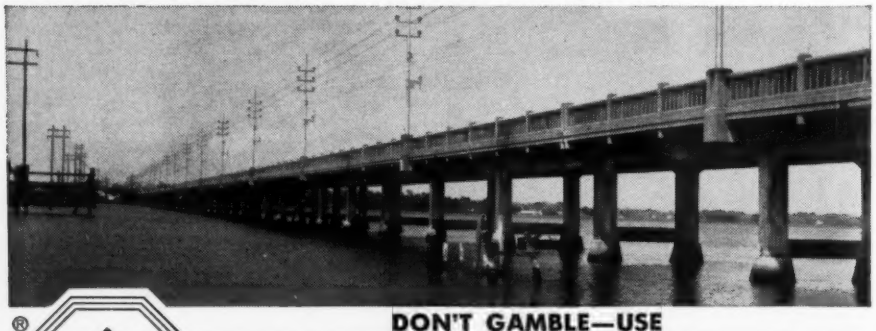
Collapsed Bridge Saved by Pressure-Creosoted Pilings

In 1949, the middle section of the D'Iberville Bridge at Biloxi, Miss., collapsed. Built in 1926, the 3,400 foot span was supported by *untreated* wood pilings encased in concrete. Swift-rushing waters soon exposed the timbers beneath the concrete casing, however, and marine borers went to work. In a few years, teredo worms had eaten so much of the untreated wood away that the concrete casings began to sink.

By 1949, with the untreated pilings almost completely eaten away, the bridge had become impassable. Repair work consisted of floating the bridge on barges, then setting 65-foot pressure-creosoted piles to support it. A 285-foot-long creosoted wooden deck was also installed to replace the crumbled concrete bridge floor. "The creosoted piles are holding up excellently, under the traffic of 3,500 cars a day, and should last another 50 years," stated Mr. Arthur McArthur, County Engineer, Harrison County, Mississippi.

To get this kind of quality and long life for your treated wood insist on pressure treatment with Creosote—the proven preservative.

Poles treated by Gulfport Creosoting Co.



DON'T GAMBLE—USE

KOPPERS® CREOSOTE

THE PERFORMANCE-PROVED WOOD PRESERVATIVE

TAR PRODUCTS DIVISION, KOPPERS COMPANY, INC., PITTSBURGH 19, PENNSYLVANIA

DISTRICT OFFICES:

Woodward, Alabama
New York, N. Y., 430 Park Avenue
Los Angeles 5, Calif., 3450 Wilshire Blvd.
Chicago, Ill., 122 S. Michigan Ave.
Boston, Mass., 250 Stuart Street
Pittsburgh, Pa., Koppers Building

IN THE NATION'S CAPITAL

Concluded from page 21

at public subscription. Thus the TVA itself—or the incorporated power business features of it—would thus drift into the orbit of private enterprise.

There are other solutions and alternatives. But the fact remains that neither Congress nor the administration has yet faced up to the long-range over-all problem. What Memphis decided to do is only a partial answer. What the Dixon-Yates contract tried to do was only a partial answer.

What needs to be done is the formulation of a consistent over-all policy that would be fair to the people of the Tennessee Valley, as well as federal taxpayers. And if it were once adopted for the TVA, the pattern would probably prevail for federal projects in other areas.

That is what the Dixon-Yates scrap is really about. All the political shadowboxing in Congress over charges of "scandal" and "conspiracy" only serves to divert public attention from this real issue. As a matter of fact, those who are determined to get the federal government deeper and deeper into the electric power business, realize that their best chance of doing so lies in distortion and confusion.

If the general public fully understood, once and for all, that the question to be answered is simply *how long and how far John Q. Public is supposed to carry the Tennessee power customers on his back*, the answer would not be long forthcoming. All the "investigations" today in Congress have produced only evidence of bureaucratic blundering and undiplomatic handling of details. There is no evidence of wrongdoing or dishonesty.

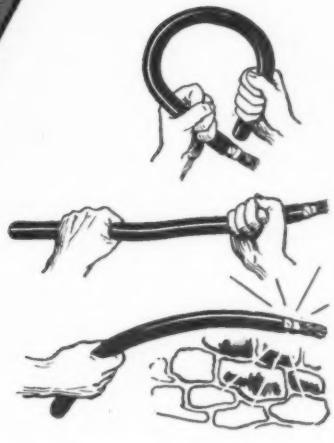
But we can expect this political campaign of distortion to continue, in an effort to keep the public's eye off the ball and the foot of public ownership in the Treasury door. The eventual fate of private enterprise in all forms of public industries in the United States, including the telephone industry, might well lie in how successfully the administration faces up to this responsibility of bringing the TVA problem back into proper focus, so that it will get the public attention it deserves.

Frugality and Economy

"In nature all is managed for the best with perfect frugality and just reserve, profuse to none, but bountiful to all; never employing on one thing more than enough, but with exact economy retrenching the superfluous, and adding force to what is principal in everything."—LORD SHAFTESBURY.

"NOT EVEN A CRACK APPEARED..."

it was 48 degrees below zero and



I TURNED it

I TWISTED it

I BANGED it against a wall"

This is what Wire Chief, **Harry Reimer** reports about

ANSONIA Ankoseal®

THE first ALL-PLASTIC CABLE

Mr. Harry Reimer, who carried out the rugged test described at the right, is Wire Chief of the Municipal Utilities System of the City of Fairbanks, Alaska.

It is added proof of the quality of Ankoseal Cable and its ability to stand up under the most rugged operating conditions.

"I gave it (Ankoseal) a rugged test. The cable was placed outdoors until the temperature hit –48 degrees. I then tried my best to break or crack the cable by every conceivable means. It was turned, twisted and even hit against a block wall. After this treatment, I inspected the cable and found no crack in the outer jacket nor were any of the conductors injured. I convinced myself that if this cable could stand such treatment at –48 degrees, it certainly will stand the test hanging on the poles at –60 degrees.

ANKOSEAL CABLE is sold to independent telephone companies through authorized Telephone Supply Distributors only.

THE ANSONIA WIRE & CABLE COMPANY

ANSONIA, CONNECTICUT Phone REGENT 4-3306

construction and maintenance DIGEST

- **Protection plus**
- **25-year battery**
- **Love this petticoat**
- **Grounding to pipe**
- **Good cable "adds up"**

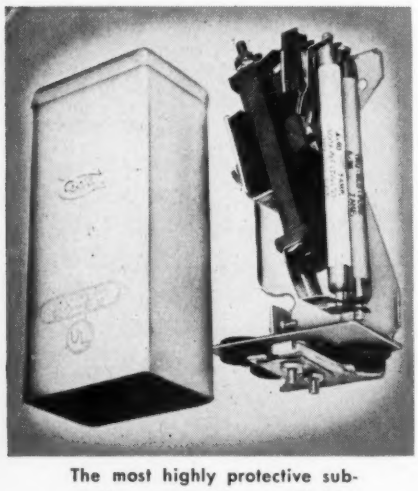
Published every week to help you get the most out of your materials and supplies dollar

by C. J. Reynolds, Stromberg-Carlson

The few dollars you spend on *reliable* equipment today will be repaid a hundredfold in lower maintenance costs for years to come. Protect your investment with the double guarantee offered by Stromberg-Carlson. First, leading manufacturers build this equipment, and guarantee it. Second, because we recommend and sell this equipment to the telephone industry, we *also* guarantee its performance!

The Cook RO-9U sub-station protector

Protection plus—that's Cook Electric Company's type RO-9U substation protector.



The most highly protective substation protector available.

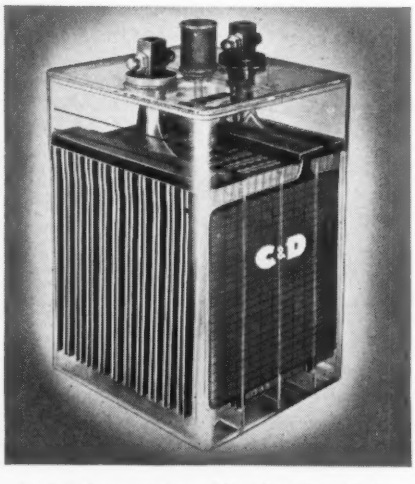
This rugged unit consists of a heavy Bakelite base, two 7-amp. ceramic fuses, two famous Tru-Gap dischargers and two secondary dischargers which will ground a fault current when the fuses blow. These are all mounted on a sturdy steel bracket and covered with a heavy gauge, weathertight, zinc hood.

For the best in fused sub-station protectors, order the RO-9U.

Battery will still have its pep when 1980 rolls around

It will last 25 years—in full float service! That's the life expectancy of C & D's PlastiCal (lead-calcium grids) telephone battery.

You get this extra-long, trouble-free operation because C & D Batteries, Inc. use an exclusive suspended and supported plate construction.



In full float service, this telephone battery stays on the job a quarter of a century.

Illustrated here is a typical C & D telephone battery with a 660 A.H. capacity. When ordering this 25-year battery, specify PCE-660.

When you find that a 14-year expectancy meets your needs, you can get dependable operation from a C & D PlastiCell (high-tensile lead alloy grids) battery. For a PlastiCell with capacity of 660 A.H., specify CE-23.

You can order either of these C & D telephone batteries, plus other capacities, from your Stromberg-Carlson representative. Ask him about extra-long-life power supply with C & D Batteries.

Single-petticoat insulator has *long* leakage path

You get just about the longest leakage path possible with a single petticoat, on this Hemingray Number 17 insulator for medium length lines. It gives you excellent service through all sorts of weather, protects the pin from moisture, and isn't disturbed by sudden or seasonal changes in temperature.

Long petticoat, small size make the Number 17 insulator highly useful.

It's easy to put up, too, because it has a full 7/16" square groove, over ⅜" deep, which provides better support. This means you can work faster, and be sure you are putting your lines up to stay.

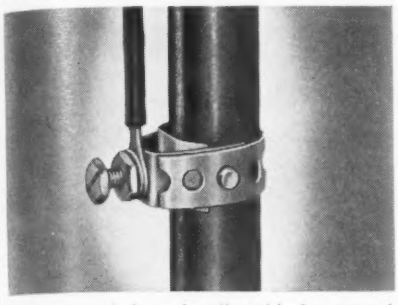
You save money both ways—on installation time **and** maintenance time. Hemingray insulators are made by Kimble Glass Company, subsidiary of Owens-Illinois, and have been the "World standard since 1870."

Want a good station ground for ⅜" to 1¼" pipe?

For all telephone, radio and signal circuit station grounds, here is a clamp with a tighter grip than a blonde clinging to a sailor's arm.

It's made by Reliable Electric Company, and has design principles which have been proven in the field to maintain high-pressure con-

tact and maximum conductivity to the joint. This vise-like grip gives you the dependable grounding you need.



Station ground clamp is adjustable for grounding to water pipe, gives maximum conductivity to joint plus high-pressure contact.

The Reliable station ground clamp is for ⅜" to 1¼" pipe, easily adjusting for any size in that range. It is made of tinned copper strip. The screws and nuts have close-fitting threads.

For a solid station ground, ask your Stromberg-Carlson representative about Reliable station ground clamps.

Copper Wire + Paper Insulating Tape + Lead-Antimony Sheath + Accuracy in every detail adds up to—Kennecott Telephone Cable

Accuracy in every manufacturing process is the reason Kennecott Telephone Cable is of high quality. Careful manufacture—attention to the minutest details—result in dependable, long-lasting cable performance.

Distributed by

Stromberg-Carlson®

Factory, General Offices:
ROCHESTER 3, NEW YORK

Sales Offices: Atlanta 3, Chicago 6, Kansas City 8, Rochester 3, San Francisco 3. Mfg. Branch, Dallas

HAWAIIAN TEL INSTALLS RADIO

Continued from page 19

radio links, stations have had to be located on mountain tops or ridges, whereas the towns served are primarily in the fertile valleys or on the seacoast of the various islands. The multiplexed channels transmitted over the radio links must, therefore, be extended over land lines or, as has been done in some cases, over additional radio links.

Because many of the radio sites are relatively remote from the populated areas of the island, it has been desirable to arrange them for unattended operation.

To accomplish this, a system of remote control and supervision has been developed capable of serving four remote stations from one attended location. Control and supervision systems are already installed on the Oahu-Hawaii and Oahu-Maui circuits.

Additional equipment is now being installed for control and supervision of remote stations on Lanai and Molokai, and installation of a similar system on the Oahu-Kauai circuits is planned for the future.

Most of the radio stations are equipped with standby receivers and transmitters to assure the highest possible degree of reliability. Transfer between regular and standby equipment is automatic in the event of equipment failure, or transfer can be initiated manually through the control system.

Information on equipment operation and station conditions at all remote locations is always available at the attended Honolulu control center through the supervision system.

Two Sites on Oahu

Two radio sites are utilized on Oahu. One, on Mauna Kapu ridge about 18 miles from Honolulu, provides a repeater station for the two circuits to Kauai. Terminals for the 900-megacycle links of these circuits are located in the penthouse of the downtown exchange building in Honolulu.

Radio equipment for the other four circuits terminating on Oahu is located at Mt. Tantalus, a 2,016-foot elevation about 4 miles from the center of Honolulu. Multiplexed channels for the individual circuits are transmitted between Honolulu and Tantalus on two cables, one for the transmitting direction and one for the receiving.

The Tantalus site was selected over previously used radio sites on Oahu because it provided line-of-sight paths to Lanai, Molokai, and Maui, and because it was close enough to Honolulu to permit the use of cable extensions for the carrier frequencies involved.

Since no previous installation had existed at Tantalus, the company provided a new access road. Separate buildings for receivers and transmitters were also constructed. Equipment in the transmitter and receiver buildings at Tantalus is shown in *Figs. 4 and 5*.

Previously established radio stations were re-used on Lanai and Molokai, and a new site was established on the island of Kauai. At all three of these locations, the multiplexed channels are extended to local exchanges over land lines with the carrier terminals placed in the exchange buildings.

A previously established site on Ulupalakua ridge on Maui was redeveloped to serve as a repeater station for the Oahu-Hawaii circuit.

A second station was then constructed at nearby Puu Mahoe to serve as a repeater location between the overwater and overland links of the Maui circuit.

The Hawaii-Oahu radio circuit is terminated at Waikii on the island of Hawaii, with open wire extensions to the carrier terminals in the Waimea and Hilo exchanges. The Waikii radio station is almost a mile above sea level, and the open wire lead to Hilo, which is almost 50 miles long, goes over a very unusual route.

The lead was first installed by the armed forces during World War II to connect the east and west coasts of the island. It follows the "saddle" formed by Hawaii's extinct volcano, Mauna Kea, and the still active volcano, Mauna Loa. For much of the distance the "ground" is solid lava, the residue of previous volcanic activity. Holes for the poles had to be bored in this hard rock, and maintenance of the lead presents some unusual problems.

An alternate route for the Waikii-Hilo channels is also available through Waimea and then along the Hamakua (east) coast of the island.

Performance

Some links of the new inter-island radio network have now been in service for almost two years, so excellent indications of performance are available. Since the entire network was engineered on a conservative basis, with all possible precautions taken to assure reliable and uninterrupted service, outages have been very minor.

On the Oahu-Hawaii circuit, for ex-

Pat. Pend.

*KLEIN KUT PLIERS

for both regular and heavy-duty cutting

It was Klein that produced the first and still the finest regular side-cutting plier. Klein also gave the industry the modern, streamlined version so much in demand.

And it's Klein again with a new, high leverage cutting plier for light- or heavy-gauge wire, including No. 2 weatherproof hard drawn solid copper wire, and A.C.S.R.

There's no extra hinging of any kind—no uncomfortable wide-spread handles—with this new Klein-Kut Plier. The offset hinge permits the extra-high leverage and operation is as smooth and easy as with any other Klein Plier. Forged from high-grade tool steel, individually fitted, tempered, adjusted and tested. Ask for No. 213-9 N.E. for streamlined pattern.

Regular pattern available

Same high-leverage design, but in the original Klein side-cutting pattern. Ask for No. 213-9.

Write for free Copy of Bulletin 1054

*Trade Mark

ASK YOUR SUPPLIER

Foreign Distributor: International Standard Electric Corp., New York.

"Since 1857"

Mathias KLEIN & Sons Established 1857 Chicago, Ill., U.S.A.

7200 McCORMICK ROAD • CHICAGO 45 ILLINOIS

ample, which includes two long over-water links, total outage time during the first 18 months of operation has been less than .06 per cent.

All of this insignificant outage time has been caused by minor difficulties with automatic transfer equipment and emergency power generators. There have been absolutely no outages due to fading.

Although the other circuits of the inter-island network have not been in operation long enough to gather accurate operating records, present indications are that performance will be comparable to that on the Oahu-Hawaii route.

Conclusions

Completion of the modernization and expansion program described here has provided residents of the Territory of Hawaii with toll telephone service comparable to that available any place on the mainland. Voice channels have better transmission quality, there are fewer busy hour delays, and calls are completed rapidly through inter-island dialing.

Many favorable comments have been received from subscribers as the new circuits have replaced the old. Although radio circuits have proven the only practical method of obtaining inter-island circuits, the three 900-megacycle links of the Hawaiian Telephone Co. are also an indication of the suitability of radio for overland routes which might otherwise be served by land lines.

H.K. Porter, Inc., Announces Organizational Changes

J. G. Geddes, president of H. K. Porter, Inc., Somerville, Mass., manufacturers of Porter metal cutters, Porter pruners, and the P-F line of automotive tools and equipment, announces the following organizational change, effective June 1. Harry M. Webster, previously sales manager of the cutter and industrial division, has now been promoted to sales manager of trade sales, in charge of all cutter, pruner, and automotive trade sales.

Mr. Webster also announced the following changes in sales coverage for cutter and pruner equipment, effective June 1:

Ray Bomgardner to represent the company in southern Illinois; Indiana (except Lake and Porter counties); southern Ohio, and Missouri.

Charles E. Harkins to represent Porter in Maine, eastern Massachusetts, New Hampshire, Rhode Island, Vermont and the province of Quebec, Canada.

W. S. Bosworth, in Michigan, northern Ohio and western Pennsylvania.

John R. Lally, in northern Illinois; Lake and Porter counties of Indiana; Minnesota; North Dakota; South Dakota, and Wisconsin.

Harry McKenney, former New England, upper New York and eastern Canada sales representative, will act in an advisory capacity, making occasional calls on distributors.

Donald L. Phinney will represent Porter in western Massachusetts; upper New York, including Sullivan, Ulster and Columbia counties, and in Ontario province, Canada.

Lyle Wolf Co., in Colorado, Montana, New Mexico, El Paso, Tex., and Wyoming.

James S. Young, in Connecticut, Delaware and eastern Pennsylvania.

Pacific Telephone & Telegraph Co. recently took delivery on 27 Studebaker trucks as 1955 additions to its "Bell Green" fleet of passenger cars and commercial vehicles in operation throughout Oregon. Shown above is one of the one-ton models, equipped with a utility body and extension boom designed by American Truck Equipment Co., in cooperation with G. W. Ruby of Pacific T&T.

Arthur Bessey Smith to Retire From Automatic Electric

Dr. Arthur Bessey Smith, research engineer, inventor and long time pioneer in communications, will retire on Aug. 31, according to an announcement by Automatic Electric Co.

Answers to Traffic Questions On Page 22

(1) Yes.

(2) The operator will leave word, clear the circuit, and give the report saying, "Extension (no.) does not answer. I will call you in about 20 minutes."

(3) Say for example, "Mr. (called party's) room telephone does not answer. I will call you."

(4) Yes.

(5) Make a subsequent attempt 20 minutes from the initial report, then as directed by the calling party.

Dr. Smith is an alumnus of the University of Nebraska, from which he received a B.S. in E.E. degree in 1901. During the early years of his career, he worked for various telephone companies in Nebraska, Iowa and New York state. From 1905 to 1909 he taught telephone engineering at Purdue University. He received the Purdue University electrical engineering degree in 1907.

Joining Automatic Electric in 1909 as assistant to the sales manager, Dr. Smith was soon transferred to the research department and has since devoted his professional career to research and development. He has been granted 31 patents by the U. S. Patent office in such fields of telephony as sub-station circuits and apparatus, transmitters, receivers, toll dialing, voice frequency repeaters, trunking systems and special services. He was the inventor of the booster telephone circuit.

Dr. Smith established the Automatic Electric training school in 1912, serving as its director while continuing his research and development activities. He received the degree of Ph.D. in Physics from Northwestern University in 1926, based on his investigation of the phenomena underlying the slow acting relay. Dr. Smith is the

DR. A. B. SMITH

author of many works, articles and technical papers on automatic telephony, telephone switching, transmission and allied topics, and was co-author with W. Lee Campbell of the book *Automatic Telephony*.

In 1934, Dr. Smith was elected a vice president of Automatic Electric Laboratories, Inc. He received the Talbot G. Martin award in 1943 and the honorary degree of Doctor of Engineering by the University of Nebraska in 1950, both in recognition of his many contributions to the field of communications.

Dr. Smith is a fellow and life member of the American Institute of Electrical Engineers, a fellow in the American Association for Advancement of Science, a member of the American Physical Society, Western Society of Engineers, Institute of Radio Engineers, Independent Telephone Pioneer Association and a life member of the Telephone Pioneers of America.

Kellogg Honors Ralph Feasel For 45 Years Service

Ralph A. Feasel, office manager of Kellogg Switchboard & Supply Co.'s Kansas City branch office and warehouse, celebrated his 45th anniversary with Kellogg in June.

President James H. Kellogg, and other company officers and sales executives, paid tribute to Mr. Feasel at a recent dinner at the Illinois Athletic Club, Chicago.

Mr. Kellogg, Vice-Presidents C. D. Manning and W. A. McCracken, and Sales Manager W. P. Hollis, commended Mr. Feasel on the exceptional job he has done both for Kellogg and the Independent telephone industry during the past 45 years. A 45-year pin and an engraved gold pocket watch

RARE GAS RELAY KILLS INTERFERENCE!

OVER 1/4 MILLION IN USE!

Party Line Transmission and Ringing Improved with Vincent Rare Gas Relay RTC-2

HERE ARE THE FEATURES:

1. Ends all objectionable noise.
2. Prohibits false ringing.
3. Easily installed in all types of equipment.
4. Lightning protection.
5. Non-mechanical, no maintenance.
6. May be used with harmonic or coded bells.
7. May be used on magneto or common battery lines.

$3.62 LIST PRICE

THE THEORY OF OPERATION —

Since the resistance of the relay is infinity below 60 volts, (The relay's normal breakdown voltage) the line remains normally free from paths to ground. Ringing voltages of over 60 volts ionizes the rare inert gases, and therefore is transmitted without difficulty.

FREE: TECHNICAL BULLETIN, WRITE DEPT. 48-A.

Brach

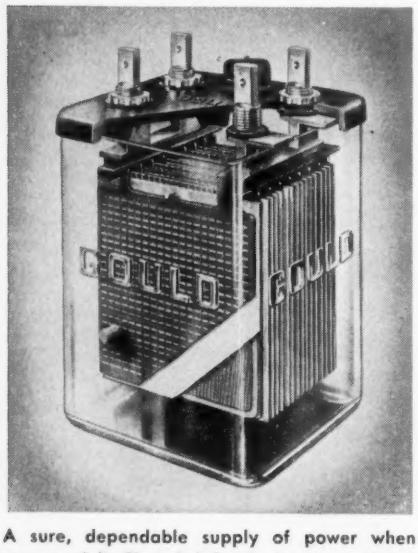
SINCE 1906

BRACH MANUFACTURING CORPORATION
Div. of General Bronze Corp.
200 CENTRAL AVENUE, NEWARK 3, NEW JERSEY
HUmboldt 2-1500

construction and maintenance DIGEST

Insure your power supply

Because Planté batteries practically last forever... providing stand-by power that never fails... they're the best operating insurance you



A sure, dependable supply of power when you need it. That, briefly, is the story of this Gould Planté battery.

can buy. In switchgear, signal and alarm systems, or emergency light and power applications, these lead batteries have rolled up amazing performance records . . . are famous for their ability to deliver a powerful surge or a steady flow of current the instant it's needed. Make sure you're in operation . . . always. Choose Gould Planté.

Distributed by

Stromberg-Carlson®

Factory, General Offices:
ROCHESTER 3, NEW YORK

Sales Offices: Atlanta 3, Chicago 6, Kansas City 8, Rochester 3, San Francisco 3. Mfg. Branch, Dallas

Here MR. FEASEL tries for size the handsome engraved watch given by J. H. KELLOGG (right), president, on behalf of the company.

were given by Mr. Kellogg on behalf of the company.

Mr. Feasel began his telephone career when just a lad by operating a switchboard for the Neosha Telephone Co., Neosha Falls, Kan., which was owned by his father.

In 1910, at the age of 16, he joined Kellogg as a "jack of all trades" in their shipping department. A few years later he was promoted to chief clerk, and for well over a quarter of a century he has been manager of the Kansas City office.

Stromberg Makes Changes In California Branch

Edgar R. Sears Jr. has been appointed telephone salesman in the Stromberg-Carlson Co. San Francisco office, according to T. C. Thompson, general telephone sales manager. Other

E. R. SEARS JR.

changes include the shift of Fred E. McGrady from sales representative to sales engineering, and the return of C. Lowell Harmon from San Francisco to the Rochester national sales engineering office.

Mr. Thompson stated that with the

NOW... CHANCE PIKE POLES ARE LAMINATED!

For greater uniformity... greater rigidity!

Now... Chance Pike Poles are made by bonding together carefully selected Douglas fir boards. Laminated Pike Poles have many advantages over the old, single board pike pole. They're more rigid. They're more uniform. Each board reinforces the other.

SAFETY PIKE—*Point can be reversed as shown in circle, for safety in handling and transporting between jobs.*

PLASTIC PROTECTED

Chance *laminated* Pike Poles are available with tough Maplac plastic coating. Splintering of the wood is eliminated. Lost-time hand injuries, caused by splinters, are avoided. *IT PAYS TO BUY HIGH QUALITY IN A PIKE POLE.* Only on a Chance pike pole will you find the steel reinforced butt which protects the end of the pike. And only *laminated* Chance pike poles are available with Maplac protection.

Write for the full story today.

CT55-1A

A·B·CHANCE CO.
CENTRALIA, MISSOURI
SAN FRANCISCO, CALIFORNIA

F. E. McGRADY

K. J. TERRY

C. L. HARMON

addition of Mr. Sears, the California sales staff now includes Kenneth J. Johnson, Ernest D. Larson, and Charles E. Fogg. The sales engineering staff includes, in addition to Mr. McGrady, Morris L. Hansen, and Kenneth J. Terry. The California manager of the telephone sales branch is Joseph P. Galligan.

Mr. Sears began his association with the telephone business in 1941. After a three-year hitch with the Signal Corps, he returned to the telephone business, and for the last five years has been a sales representative in the Ohio area. Other experience includes retailing in San Francisco.

Mr. McGrady has been serving as telephone sales representative in the northwest territory and Southern California, Nevada, Utah, and Arizona. He has spent all his life in telephony and his three years' military service were with the Signal Corps in Alaska as technical sergeant in charge of telephone engineering and installation.

Mr. Johnson joined Stromberg-Carlson in 1946 and after initial training at Rochester was assigned to the Kansas City sales branch. He has recently been transferred to the San Francisco branch and will represent the company in northern California, Nevada, and Utah.

Mr. Larson has had previous sales experience in Oregon and southern Idaho and prior to that, wide experience in installing dial equipment for both Western Electric and Stromberg-Carlson. He also had Signal Corps experience.

Mr. Fogg has recovered from an unfortunate accident which meant leaving the Indiana-Kentucky-Tennessee territory. Formerly a wire chief on Guam during the last war, he joined Stromberg-Carlson in the installation department and handled a number of large XY dial installations. Mr. Fogg represents the company in the northwest.

The sales engineering picture is completed with Mr. Hansen, who started with the company in 1946, and Kenneth Terry, who joined Stromberg-Carlson in 1949. Mr. Hansen's previous experience included work with western public utilities before entering the telephone field as sales representative and engineer.

Mr. Terry came up through the ranks of inspection, installation, and technical writing. Army experience includes two years of overseas duty.

Telephones and Living Standards

"The most obvious measurement of living standards is found in our material possessions. And here, despite wars and inflation and everything else, we

SEAL OUT TROUBLE...

Permanently

with Easy-to-Use

KEARNEY Airseal

Corrosion and oxidation are no longer maintenance problems when your ground rod connections are sealed with KEARNEY Airseal. This weather-proof compound forms an air-tight coating over any shape connection with a simple squeeze of the hand. Airseal will not deteriorate . . . even when used on ground rod connections below ground. It remains pliable indefinitely . . . at temperatures from –50°F up to 250°F.

For time-saving use KEARNEY Airseal — available in convenient sized pads, or in 10-foot rolls.

For Better Construction . . . For Safer Maintenance

Specify

263

KEARNEY PRODUCTS

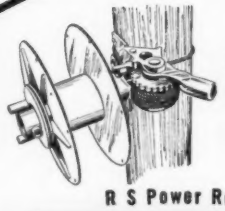
4224-42 Clayton Ave. • St. Louis 10, Mo.

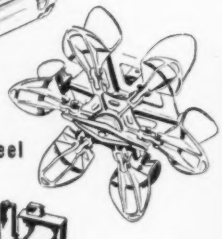
Canadian Plant: Guelph, Ontario

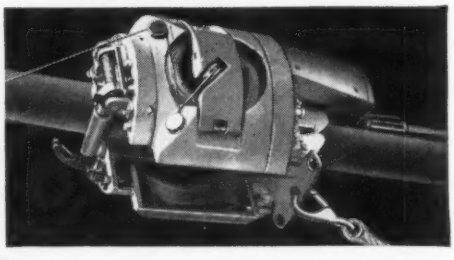
GENERAL
MACHINE PRODUCTS
COMPANY, INC.
7th & Wood Sts.
Philadelphia 6, Pa.

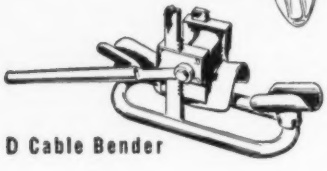
Aerial Tents
Cable Benders
Cable Blocks
Cable Lashers
Coaxial Cable Tools
Lashing Wire Clamps and Grips
Portable & Power Reels

Pressure Testing Kit


R S Power Reel


C R Power Reel




D Cable Bender

Distributed by GraybaR

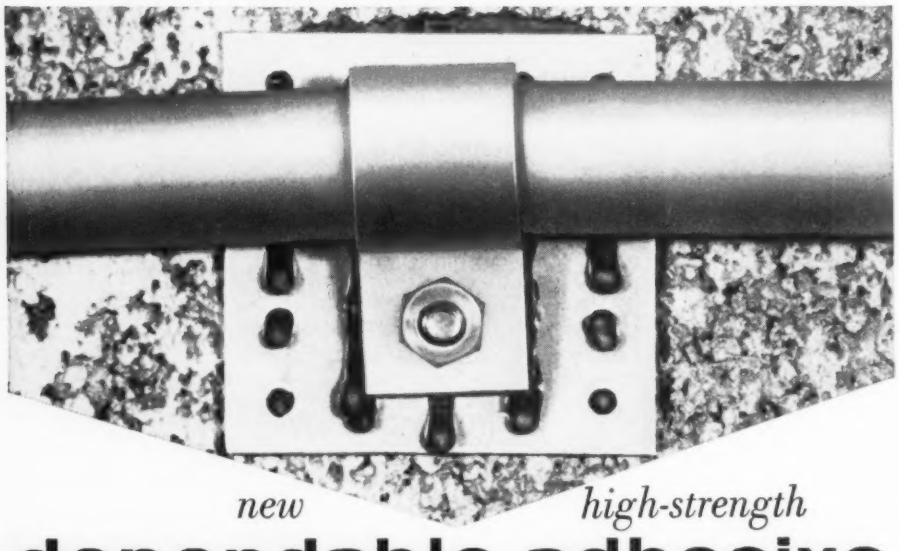
B, C, D & E Cable Lashers

Special Purpose Tools To Specifications
Literature on Request

Over 250 various items of Line Construction Tools, Maintenance & Pressure-Testing Equipment in stock for immediate Shipment

SPECIALIZED COMMUNICATIONS EQUIPMENT SINCE 1918

GMPCO



new *high-strength*

dependable adhesive

Service-proved PLACCO 1000

Ask us for references on the long-life holding power of Placco 1000. Other advantages are elimination of drilling; ease of installation in congested areas; low cost; quick setting; adhesion to porous and non-porous surfaces; installation indoors or out.

A complete line of wire and cable hangers
is available in either stainless or galvanized steel.
Send for bulletins on both adhesive and hangers.

PIONEER
LINCOLN BOULEVARD LATEX & CHEMICAL CO. MIDDLESEX, NEW JERSEY

have been going ahead at a great rate. Where 79 per cent of the homes had electricity in 1940, practically all have it now. Only 40 per cent of the homes had mechanical refrigeration in 1940—now the figure is 90 per cent. Seventy per cent of our families today have cars, as against 50 per cent in 1940. In the same period, the percentage with telephones has almost doubled. So it goes, down an almost endless list."—*Industrial News Review.*

Gould Appoints Richard Relf Cleveland District Manager

The appointment of Richard Relf as district manager in the Cleveland area has been announced by Gould-National Batteries, Inc.

RICHARD RELF

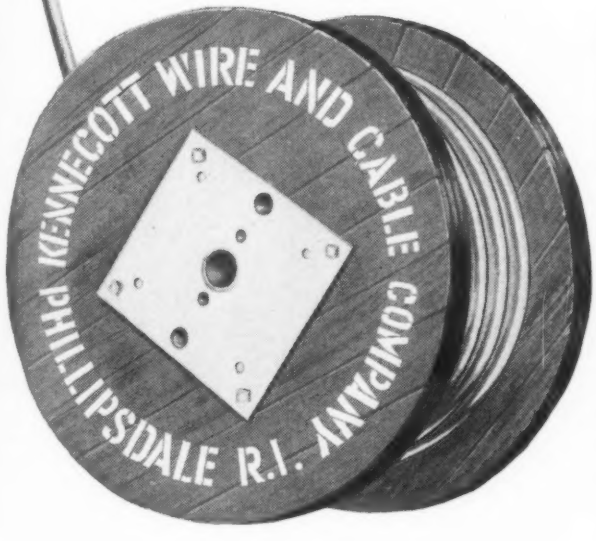
A native of St. Paul, Minn., Mr. Relf joined the Gould organization in 1948 after service aboard destroyers during World War II and attendance at the University of Minnesota. Before being assigned to the Cleveland territory, Mr. Relf was employed in Gould's Depew, N. Y.; Trenton, N. J.; Chicago and Columbus districts.

Exide Names O. N. Dean Manufacturing Manager

Oakley N. Dean has been named manufacturing manager, Exide industrial division of The Electric Storage Battery Co., Roland Whitehurst, vice president and general manager of the division, announced.

Mr. Dean, manager of the division's manufacturing operations in Philadelphia since 1952, succeeds Wallace E. Nyce, who retired on June 30 after 43 years with the company. He assumes responsibility for all industrial battery manufacturing operations, plant engineering, industrial engineering and purchasing for plants in Boston, Chicago, Detroit, Philadelphia and San Francisco.

KENNECOTT CABLE IS CHECKED IN EVERY DETAIL



✓ Step by step Kennecott Telephone Cable is carefully tested so that the finished product is certain to be reliable, long-lasting and time-resistant.

Every bit of copper wire, insulating tape and sheathing must go through a quality-control program in order to qualify for use in high-grade Kennecott Cable.

Remember the name Kennecott whenever you need cable. Call your local Chase sales office for full information.

CHASE BRASS & COPPER CO.
Waterbury 20, Conn.

DISTRIBUTOR FOR
KENNECOTT WIRE & CABLE CO.
Subsidiaries of Kennecott Copper Corporation

CHASE WAREHOUSES and OFFICES:

Albany†	Chicago	Detroit	Los Angeles	New York	St. Louis
Atlanta	Cincinnati	Grand Rapids†	Milwaukee	Philadelphia	San Francisco
Baltimore	Cleveland	Houston	Minneapolis	Pittsburgh	Seattle
Boston	Dallas	Indianapolis	Newark	Providence	Waterbury
Charlotte	Denver	Kansas City, Mo.	New Orleans	Rochester†	(†sales office only)

To get things done come to the one who's busy doing things for others!

—

That's us—
nationally and
internationally—

—

We're getting larger every day—we want to help you get that way!

★

GUSTAV HIRSCH ORGANIZATION, INC.
1347 WEST FIFTH AVE.
COLUMBUS 12, OHIO
Telephone: HUdson 8-0611

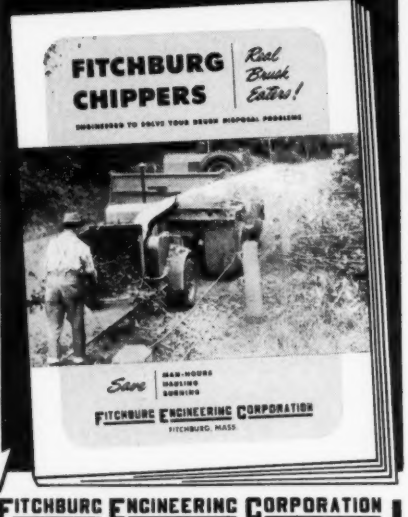
EXTRA Holding Power
QUICKLY Installed
TOUGH For long life

EVERSTICK ANCHORS

For new construction and maintenance — Everstick Anchors speed up work and provide dependable anchorage on all types of jobs. Made of resiliant, rust resistant malleable iron. The toughest anchors made. Write for bulletin.

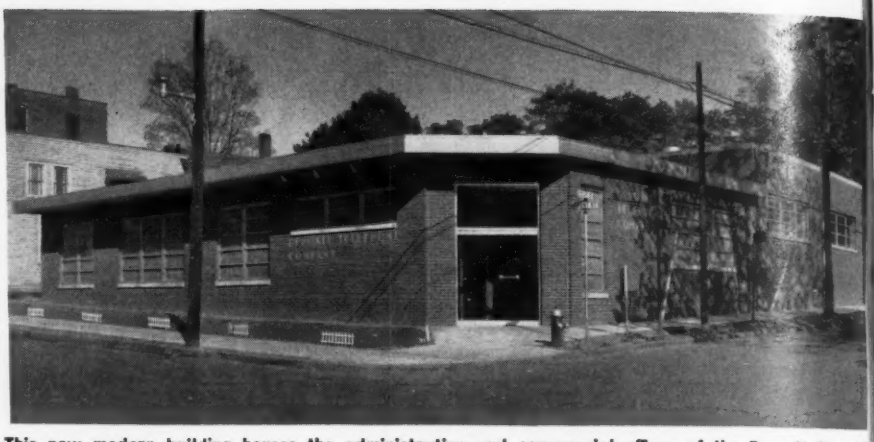
EVERSTICK ANCHOR CO.
FAIRFIELD, IOWA

BRUSH DISPOSAL COSTS
CUT 25 to 50%
FREE BOOKLET TELLS HOW
Mail Coupon Today



FITCHBURG ENGINEERING CORPORATION
Fitchburg, Mass., Dept. T-75
Send your free booklet on cutting costs.

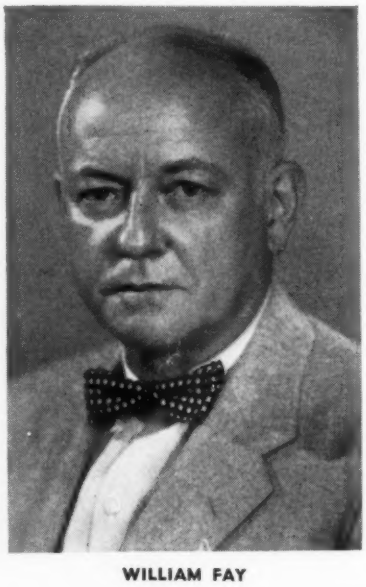
*Name*_____
*Company*_____
*Address*_____
*City*_____ *State*_____



This new modern building houses the administrative and commercial offices of the Deposit (N. Y.) Telephone Co. in addition to the new Automatic Electric Type 11 terminal-per-station equipment. Equipment includes 500 lines and 1200 connecting terminals. Cut-over was accomplished on schedule. S. Fenton Busfield is president and general mancger of the Deposit Company.

William Fay Named President of Stromberg-Carlson Broadcasting

The announcement on June 8 that the Federal Communications Commission (FCC) had approved the transfer of licenses formerly held by the Stromberg-Carlson Co., Rochester, N. Y., to a new corporation known as Stromberg-Carlson Broadcasting Co. came as the culmination of many years of consideration of incorporation.



WILLIAM FAY

Robert C. Tait, president of the Stromberg-Carlson Co. has announced that William Fay is to be president of the new corporation. Mr. Tait will be chairman of the board of directors. The board will include: Mr. Tait; Mr. Fay; Gordon G. Hoit, who is executive vice president of Stromberg-Carlson Co.; Lee McCanne, executive vice president of the Rochester Chamber of Commerce, and Arthur Stern, Rochester attorney, as the Stromberg-Carlson representatives. Representing the General Dynamics Corp. are Frank Pace Jr., executive vice president and vice

R. C. TAIT

chairman of the board of the General Dynamics; Earl D. Johnson, senior vice president-development and operations; Lambert J. Gross, vice president in charge of finance, and Roger I. Harris, vice president and counsel.

Mr. Fay has been vice president in charge of the broadcasting division of the Stromberg-Carlson Co. since 1945. Well known for his many contributions to the broadcasting industry, Mr. Fay is a pioneer broadcaster having started in 1924 in the industry's earliest days. Active on the national scene, Mr. Fay is on the Advisory Council of the Voice of America, a director of the National Association of Radio and Television Broadcasters, and secretary-treasurer of the NBC-TV Affiliates.

In 1927, Stromberg-Carlson purchased Rochester's pioneer radio station, WHAM, then operating at the Eastman School of Music on a power output of 100 watts. Today, this clear channel 50,000-watt station is one of the country's most powerful and pro-

INSPECTION SERVICE
Of poles, crossarms, and preservative treatments. Analyses of wood preservatives. Consulting and specification writing. Inspectors stationed throughout U.S.A.
A. W. WILLIAMS INSPECTION CO.
MOBILE, ALABAMA
ESTABLISHED 1921—MEMBER A.C.I.L.

APPALACHIAN
Wood Preservers, Inc.
* POLES *
Penta — Creosote — C-CZC
Truck & Rail Delivery
Goshen, Va. Phone Craigsville 4981

ATLANTIC
Creosoting Co., Inc., 17 Battery Pl., N. Y. C.
Creosoted Pine Poles • Crossarms
PLANTS AND OFFICES
Boston, Mass. Portsmouth, Va.
New York, N. Y. Philadelphia, Pa.
Savannah, Ga.

POLES

B. J. Carney & Co., 100 N. 7th St., Minneapolis, Minn.—Western red cedar poles. Pentrex Butt Treated or Plain.

Cascade Pole Co., P.O. Box 743, Tacoma, Wash. — Creosoted Douglas Fir and Cedar Poles.

C. M. Christiansen Co.—Northern White Cedar Poles, Pentachlorophenol treated. Plant and Yards, Phelps, Wis.

Dierks Forests, Inc. (formerly Dierks Lumber & Coal Co.) Wood Preserving Division, 700 Dierks Building, Kansas City, Mo. Southern Pine select poles, all sizes and lengths, creosote and pentapressure treated. Prompt shipment.

Eppinger & Russell Co., 80—8th Avenue, New York 11, N. Y.—Creosoted Poles and Cross Arms. Plants: Jacksonville, Fla., Norfolk, Va., Eddington, Pa.

International Creosoting and Construction Co., Galveston, Texas.—Creosoted Southern Yellow Pine Poles. Plants: Beaumont and Texarkana, Texas.

Kennedy Saw Mills, Inc., Box 54, Shreveport, La.—Premium poles, Penta or Creosote. Quick shipments.

T. M. Partridge Lumber Co., 731 Lumber Exchange, Minneapolis, Minn. —Northern white and western red cedar poles, creosote and pentachlorophenol treatments.

Texas Creosoting Company—512 Main Street, Orange, Texas—Creosoted Southern Yellow Pine and Douglas Fir Poles. Can also treat with "Penta."

gressive AM broadcasting operations. In 1939, Stromberg-Carlson began operating the first frequency modulation station in Up-State New York, WHFM.

On June 11, 1949, Stromberg-Carlson placed in operation the first television station in Rochester, WHAM-TV. Today this Channel 5 station, with maximum power of 100,000 watts, is transmitting NBC color broadcasts, in addition to a full schedule of local and network black and white TV programs daily. All studio facilities for the three Stromberg-Carlson broadcasting stations are housed in a million dollar broadcasting center, "Rochester Radio City," located adjacent to the company's main manufacturing plant.

*

It was announced recently by William Fay, in his capacity as president of Stromberg-Carlson Broadcasting, that John W. Kennedy Jr. is named vice president and Charles W. Pritchard, secretary-treasurer of the broadcasting corporation, effective at the time of the announcement.

Cooperative Will Construct Telephone Network in Idaho

The Custer Telephone Cooperative is soon to start construction of a telephone network which will cover Custer County and the Pahsamaroi Valley, Idaho, it is reported. The system is exected to be completed by July, 1956.

Members of the board of directors of the Custer co-op are: C. C. Rittenhouse, president; Charles Hathhorn, Lynn Wilson, Bob Hammond, R. J. Legard, Ralph MacFee and Nim Urie.

SLOAN, COOK & LOWE
CONSULTING ENGINEERS
Appraisals—Original Cost Studies
Plant, Traffic and Commercial Engineering
120 S. La Salle St.
Chicago 3, Ill. Tel.: FRanklin 2-5924

CABANISS-POGUE COMPANY
Consulting Engineers
Appraisals—Cost and Rate Studies
Financial Assistance
GRANT BLDG., ATLANTA, GEORGIA

CREASMAN-MARSHALL CO.
P.O. BOX 6115
ASHEVILLE, NORTH CAROLINA
CABLE MAINTENANCE
CABLE SPLICING • ENGINEERING
STATION INSTALLATION
PBX AND KEY EQUIPMENT
INTER COMMUNICATIONS SYSTEMS

BEL Subscriber Line Carrier
$450 per Channel
Proves in even for private line service.
Write for Information
Boucher Engineering Laboratory
Stoughton Massachusetts

What You Want
When You Want It
Immediate Shipment from
Nearest Warehouse Points
TELEPHONE & POWER SUPPLY, INC.
TOPEKA, KANSAS PHONE 4-8788

TELEPHONE PRINTING
By People Who Know
the Telephone Business
SEE THE SUTTLE CATALOG
SUTTLE EQUIPMENT CO.
LAWRENCEVILLE ILLINOIS

ROBERT E. FOLEY
CONSTRUCTION CORP.
DESIGN—SURVEYS—APPRAISALS—Construction and Maintenance of Overhead and Underground Telephone Plant. Complete supply of poles available for emergency requirements.
48 GRISWOLD STREET
BINGHAMTON, N. Y. TEL. 2-7215

MORTON CONSTRUCTION CO.
Builders of Outside Telephone Plants
Cable Splicers, Line Crews, Installers
A service that Satisfies
Pekin, Illinois • Box 11 • Phone 2515

NEALE
CONSTRUCTION CO.
ENGINEERING • CONSTRUCTION • MAINTENANCE
TOPEKA, KANSAS PHONE 4-2621

CABLE SPLICERS • LINEMEN
STATION INSTALLERS
STEADY WORK, GOOD PAY.
MIDWEST LOCATION.
The Weikel Line Company, Inc.
FORT WAYNE, IND.

CYRUS G. HILL
ENGINEERS
PLANT — TRAFFIC — COMMERCIAL
VALUATIONS AND ORIGINAL COST
134 S. LA SALLE STREET, CHICAGO 3

TUDOR AND YAGER, INC.
Telephone Construction
TIPTON, INDIANA
PHONE 125

CLASSIFIED SECTION

Rates 15 cents per word payable in advance. Minimum charge $3.00 for 20 words or less.
Classified advertisements must reach us 8 days before publication date.

FOR SALE

ONE NORTH ELECTRIC MANUFACTURING COMPANY 1 CX 100 line fully equipped; 100 line 10 links 5 trunks, automatic switchboard complete with main frame and batteries. Also complete for intertoll dialing available at once. Will accept bid on this switchboard. Contact O. B. Lineberger, Jeffersonville Telephone Company, Jeffersonville, Georgia.

WE NEED CASH

Battery boxes	.25 ea.
WE No. 315 Subscriber Sets	1.00 ea.
WE No. 202 Hand Sets with EI Hand Set	3.00 ea.
Federal Combination Hand Sets	9.00 ea.

F.O.B. Ludlow, Vt.
LUDLOW TELEPHONE COMPANY
111 Main Street, Ludlow, Vermont

W.E. F-1 trans. capsules—factory rebuilt.... .75
W.E. HA-1 receiver capsules, like new, perfect ..... .50
W.E. #5H Dials, $4.00 ea., lots of 25 to 49—$3.50 ea., 50 to 100—$3.00 ea. Rebuilt.
W.E. #6A Dials—$5.00 ea. 4H.....$2.00 ea.
REBELCO handset conversion kits. F-1 handle, cover plate, 4 cond. cord and saddle....$7.50
W.E. E-1 handles with F-1 unit and 3 cond. cord $2.50
W.E. F-1 handles—F-1 and HA-1 units, with cord $5.00

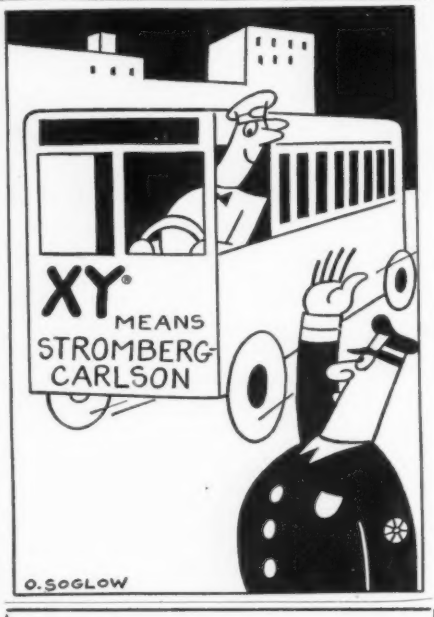
Handset transmitters expertly rebuilt using factory methods at reasonable rates.

Over forty years of service to the Independent industry.

REBUILT ELECTRIC EQUIPMENT CO.
1704 West 21st Place Chicago, Ill.

FOR SALE

Dial switchboard — Used 50 line Strowger with ringing machine, battery charger and main distributing frame. Available about Aug. 15. Urban Telephone Co., Clintonville, Wis.



Need help? Need a job? Something to sell? Something to buy? For best results and quick results use
TELEPHONY's
Classified Advertising Section

POSITION WANTED

TELEPHONE EXECUTIVE — 40 years of age with 18 years experience in Bell and Independent companies desires change. Familiar with nearly all phases of telephony, including commercial, plant and traffic management and telephone merchandising. Write Box 3710 c/o TELEPHONY.

POSITION WANTED—Strowger equipment man, know outside plant, 20 years experience. Write Box No. 3708, c/o TELEPHONY.

RETIRED SPLICER; 39 years experience desires part time splicing and repair; Midwestern Wisconsin and Minnesota. D. Nelson, 3324 Bryant Ave. So., Minneapolis, Minn.

WANTED TO BUY

USED DIAL SWITCHBOARDS ANY SIZE — USED HANDSETS — TELEPHONES. Write Telephone Equipment, Inc., Montrose, Mich.

HELP WANTED

DISTRICT MANAGER with experience desired for Class A California telephone company. District includes 2400 stations in 9 dial exchanges. Opportunity for advancement. Send your résumé to Box 3703, c/o TELEPHONY.

CABLE SPLICERS, Station Installers, Linemen. Experienced men needed. Steady work, good pay. Henkels & McCoy, 6100 N. 20th, Philadelphia, Pa.

MAN, AGE 28, WITH 12 YEARS TELEPHONE EXPERIENCE; equipment, outside plant, maintenance, operation and expansion of dial and manual systems, toll systems, carrier telephone repeaters, teletype circuits program circuits, etc. At present supervising five exchange manual and dial operation in South America. Prefer location in Western United States or Canada. Available around first of year for supervisory, management, occupational or field engineering position. Write Box No. 3705, c/o TELEPHONY.

Progressive Class A California Telephone Company
has openings for:
INSTALLERS & LINEMEN
Minimum of 4 years experience
Ideal working conditions
Excellent employee benefits
Submit complete resume of experience, training and education, including references and recent photograph to:
Box No. 3709, c/o Telephony

RECONDITIONED MAGNETO TELEPHONES

FEDERAL DESK OR WALL MAGNETO HANDSETS

#804-BA with W.E. #BIAL 4300 ohm ringer
#804-CW with 2000 ohm Ringer
#804-A with 1000 ohm Ringer

TYPE "C" HANDSET WALL MAGNETO TELEPHONES

5 Bar 1600 or 2500 ohm
3 Bar 1600 or 2500 ohm
Black Lacquer Finish Unless Oak is specified.

BUCKEYE TELEPHONE & SUPPLY CO.
1250 Kinnear Road HUdson 8-0655 Columbus 21, Ohio